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THE

# *Philosophical Review*

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# THE SUBJECTIVE AS A PROBLEM: AN ESSAY IN CRITICISM OF NATURALISTIC AND EXISTENTIAL PHILOSOPHIES

ONE OF the impressive developments during the past half century of western philosophy has been the assimilation of what were once regarded as peculiarly human characteristics to the natural, indeed, even to the purely physical world. Long familiar distinctions have been partly, if not wholly, dissolved. The substantial duality of mind and matter is no longer an ultimate and absolute distinction in the realm of being. Purpose in man, belonging with his intelligence, now shades into purposive behavior discovered in nature at large, and this teleology in turn is only a special perspective upon action that is in general explained in causal terms. The dissolving process, however, has not been simply a one-sided reduction where the mental or spiritual is absorbed into the physical order. Nature is also lighted up with the qualities of mind or spirit. Thus, for example, perception and inventive creativity, which have been so closely identified with the being of conscious persons, are sometimes attributed, metaphysically, to nature. Withal, however, there is one uniform consequence, whether the assimilation be of the latter sort or the former, namely that consciousness loses its prime significance in philosophy and even its importance as a distinguishing character of *human* existence.

Meanwhile another contemporary movement has swept "the subjective" into prominence as the very touchstone of existence, and the existential philosophy is now one of the dominant ways of thinking. In a quite unconventional fashion it deals with the ancient speculative themes of metaphysics such as Being and Becoming, Reality, Time, and Process. From the very start, however, it also had the critical character of modern philosophy which is conscious of the conventions involved and of the break or leap that is made. Those who began it clearly defined its point of departure and the presuppositions of the new way to truth. They have been explicit about the method and the principle being followed. Within the

framework of their postulates and rules of operation there is a persistent following of an argument. Such a mode of thought is entitled to consideration as a genuine not a *soi-disant* philosophy. It has endured long enough to have a history. More significant still, it has generated a fertilizing diversity of thought within its own tradition and produced its own internal criticism, all of which is a sure sign of a living vigorous philosophy.

These two groups of naturalistic and existential philosophies happen to co-exist in the same cultural period, yet they do not exist for each other, as Hegel would express it. Those who move in the one world and those who live in the other world take no cognizance of each other. They may know one another by hearsay, but they remain essentially strangers without interest in deepening the acquaintance—not even wanting to bother about argument. Nothing ever seems to come to an issue between them. They are without rapport, worlds apart.

Mutual ignorance like this in philosophy makes one uneasily conscious of incompleteness on both sides. The true philosophical impulse is to consider all ideas which seriously engage the minds of men, to evaluate them, and to envisage them as a whole. The aim is comprehensiveness. Different philosophies will exist partly because men differ in what they see, and differ, too, in their emphases, in their estimates of importance, and in the place that different items properly have in their systematic account of being and of man and the world. It seems quite contrary to all philosophy, however, for the philosophers to take no account of each other's comprehensive systems.

This is not good. Those who have responsibilities in public affairs today regard it as a very grave menace that the various nations are such self-enclosed and curtained-off entities, between which there is little or no communication. They realize the necessity for seeking relationships in order to advance toward a world worthy of the name civilized. If politicians have already taken up this task, can philosophers be far behind?

Of course, the danger to philosophy is not nationalism, as it is in politics. But there is the menace of unconscious specialism. A line of thought may be pursued without regard for other lines so that only one path is allowed to knowledge and truth—all else is shut

out beforehand. When one considers one's own way to be universal, one mistakes what it means for anything to be universal. Comprehensive universality is what the genuine philosopher keeps in view as a check to his own conceit.

The present paper is an attempt to bring these two utterly different sorts of philosophy into relationship at some point of difference and thus to avert the danger of isolationism in philosophy.

The suggested meeting point I have already indicated, namely, the view and estimate of "the subjective." I do not presume that this is the only point at which it would be profitable to explore the differences in contemporary thinking about man and the world. This is simply one among many possibilities. It may be the growing point of philosophy in our time, or it may not be. The important thing is to make some effort to bring about more communication in philosophy and progress in wisdom.

## I. THE METAPHYSICS OF WHITEHEAD

I have selected Whitehead for examination from the various distinguished representatives of the first of these philosophies. He has been the outspokenly speculative philosopher in the movement and is more likely, on that account, to define the farther reaches of theory and disclose its limitations than those who are guardedly empirical and eschew speculation. But a demurrer will be heard. Whitehead is not really typical of anything. He is unique, the inventor of an extraordinary language assimilated to English prosody. He has justified such terms as "prehension," "ingression," etc., as being word coinage necessary because of the new discriminations and relationships he has perceived in the analysis of experience. This is permissible. One must allow a thinker that privilege of creating language; it has always been the way to knowledge, as formula is often the way, too, of securing a period of peace among warring nations. It is only language makers *without* content who discredit creative genius in language use. But the status of genius, of course, is always ambiguous. Some think that the philosophy of Whitehead is so revolutionary that it is the veritable analogue today of the *Prolegomena to every Future Metaphysic*. Others believe that Whitehead has read himself quite out of philosophy altogether, and gone into an enclave by himself as an oddity. My experience in the

study of Whitehead has been that his philosophy is neither utterly peculiar nor absolutely revolutionary; it is quite assimilable to the tradition of western philosophy, but at the same time, it is a distinct step in advance.

Let us examine something that Whitehead himself signalizes as distinctive. Consider this passage from *Process and Reality:*

> The discussion of the problem constituted by the connection between causation and perception has been conducted . . . under the misapprehension generated by an inversion of the true constitution of experience. The inversion was explicit in the writings of Hume and Kant: for both of them presentational immediacy was the primary fact of perception; and any apprehension of causation was, somehow or other, to be elicited from the primary fact.[1]

In a very careful and sympathetic critique A. A. Bowman has interpreted Whitehead thus: "instead of beginning with presentational immediacy and deducing causal efficacy from the latter, [we] must begin with causal efficacy as the basic experience upon which presentational immediacy is altogether dependent." "But," Bowman continues after explaining the "inversion," "causal efficacy does not stop short with the consciousness of it or even with the world of living things . . . it goes beneath all such distinctions as the conscious or the unconscious, the animate and the inanimate . . . The experience of causation is therefore nothing but the effectiveness of causation. That is to say, the feeling is not one thing and the effectiveness another . . . All is effectiveness, all feeling, all experience." "A universe," Bowman concludes, "in which the physical and the subjective *have become completely assimilated.*"[2]

This complete assimilation of the subjective and the physical is characteristic of the thought of Whitehead. I have reversed the order of terms in Bowman's sentence where it read "physical and subjective," for it is important to note that there is such equivalence: the physical is not prior to nor more basic than the subjective. No reduction is intended of one to the other. Both are needed in this philosophy and they throw light on each other.

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[1] *Op. cit.*, p. 263.

[2] See A. A. Bowman, *A Sacramental Universe* (Princeton, Princeton University Press, 1939), chap. 11, section 23, p. 79. I am greatly indebted to Bowman's study of Whitehead, as will be seen in my conclusion.

Whitehead spoke of the "true constitution of experience." This more than anything else perhaps can serve as a common reference for a comparison of the philosophy of Whitehead with that of the previous modern philosophies which he criticized. He offered an explicit alternative, for example, to the views of both Hume and Kant. He made other factors constitutive of experience. For experience is not subjective in the ordinary sense. It is "efficacy," not simply consciousness. It contains relationships which are the very conditions of conscious awareness, though at the same time consciousness does have a part in experience, which Whitehead must explain.

But "experience" is a troublesome concept in philosophy today. It can hardly serve as the common referent for philosophy as a whole, including the existential variety, in our period of history. I propose instead to relate the positions through their several interpretations of "the situation of man." What I mean by "situation" is the two-fold relationship between man and nature indicated in the philosophy of Descartes and continuing through Kant into the philosophy of the present day. Actually the description of the situation as given in the first instance by Descartes is much too limited a version, and it has to be made more complex and general to apply as well to this later philosophy. However, the Cartesian view of the situation is useful to begin with. It runs as follows. Sensation is man's immediate reception and notice of the real, but the intelligence of it calls for man's active thinking. We encounter reality in sense; but we really know it in the form of a conceived order of objects and relations. However much the philosophers after Descartes differ, I suggest, they start from this *interactive* relationship of man and nature.

This primordial frame of reference, however, must be more fully defined. Attention has been directed too exclusively to the problem of knowledge in this human situation, the problem of "perception, physics and reality." But from the very beginning there was implicit in the description of the way man attains to knowledge another aspect of man's situation, which only began to receive adequate notice in Hegel, in the voluntaristic philosophy of the nineteenth century, and later in Bergson. The original position of Descartes had emphasized that in respect to sensation or perception man is relatively

"passive," whereas he is active in the elaborate conceptual thinking, theorizing, constructing, and reasoning which effects knowledge. And Descartes himself had stressed the active "will" over against the "passions," and he included will in the characterization of the thinking being or self. The thinking substance *acts* in thinking, and it can also overact beyond its lights, whence comes error. But every type of substance *qua* substance has power and acts—thus God acts in his fashion, and body or material substance acts in its distinctive physical way. The whole wide world is a scene of interactions of beings, now in a passive role, again in an active role. It is give and take at all times.

The point is that the active relationships indicated (of man being affected by that which acts on him, and of man doing things in knowing and acting in his world) are ingredient, so to speak, in the primary situation. Thus causality is inherent in reality—in *res extensa* and *res cogitans*. We do not have merely a cognitive relation of mind with respect to perception and a causal relation of perception to the ulterior object as cognitively understood, but we have a doubly active role of both the subject and nature, and we cannot avoid explaining every aspect of the situation in terms of mutual causal relationships.

Now I am inclined to believe that this primary theory of the human situation is a sort of ultimate common sense by which men check their thinking and speculation. It has served as a dynamic norm for modern philosophy. It is like the central balance of position of a spinning top, or better, that of a gyroscope, where any deflection from the normal position tends to be corrected by the moving system itself which holds to the norm.

In the philosophy of Descartes the cognitive relation of idea and existence is only part of the whole existing relationship of man and the world, which is essentially a relationship of interaction. Actually, for Descartes "causal efficacy" is compresent with perception. Before he can define the "essence" of body, "extension," he recognizes body as another existence than that of himself thinking. There is a "presence" indicated by the "adventitious" character of the ideas, that they "come to" man. "Existentially," so to speak, extended body is already effective on mind and is made known in sense perception, and the problem for man is not to "prove" exist-

ence but to obtain a clear and distinct conception of *what exists and is noticed* in sense perception. One may object, however, to this "existential" view of Descartes, of which he himself declares in *Meditation* II, that he can there only define the idea or essence of body and not prove its existence, which must come later (in *Meditation* VI). But this is not at all contrary to the present interpretation. The problem for Descartes the philosopher is to obtain a guarantee not of existence, but of the existence of that which is clearly and distinctly conceived as the truth, or which purports to represent what is actually there or existing. In *Meditation* II Descartes does indeed define the nature of body as extension *before* he *proves* that body exists as conceived; but this later proof is only the philosopher's proof because of the philosopher's problem about the nature of truth and in order to settle the philosopher's doubt. The primary experience is existential—it is of existence which is made known to man *in doubt,* and so it is there known as something needing philosophical definition and clarification. The notion of the existence of body cannot be deduced from anything else.[3] There is a primordial causal efficacy making us aware of existence.[4]

Consider now Whitehead as an interpreter of the human situation. Causal efficacy is for him a primary essential ingredient. He says in effect: sense objects are perceived as being causally outside the body, and man knows them thus. But with our inveterate habit of thinking of a perceiver or a subject, we want more said about this question of man's knowing. Earlier, in the *Principles of Natural Knowledge,* Whitehead had tried to take care of "the subject" in his notion of the "percipient event." And since what is lurking in our mind is the sense of some action on our part in knowing, Whitehead explained: "The sense of action is the direct knowledge of the per-

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[3] There seems to be an exact parallel between Descartes on this point of the existence of body and Kierkegaard's view about a proof of the existence of God in the *Philosophical Fragments,* translated by P. F. Swenson (Princeton, Princeton University Press, 1936), pp. 31-35, and footnote on Spinoza, p. 32n. Sartre has something of the same idea in his remarks on the *Cogito,* in *L'Etre et le néant* (Paris, Gallimard, 1949), 25th ed.

[4] Hence we find Descartes saying to one of his objectors that it would be a disproof of God's own existence as a Perfect Being if we were ever to receive our adventitious ideas of body directly from God rather than from the very being of body itself which causes them in our perception.

cipient event as having its very being in the formation of its natural relations. Knowledge issues from this reciprocal insistence between this event and the rest of nature," viz., "relations are perceived in the making and because of the making."[5] Here Whitehead recognized the normal view, as I have called it, of the human situation, in this "reciprocal insistence" between "the percipient event and the rest of nature." "Reciprocal insistence" is simply a deliverance of common sense.

Now it is noteworthy that after speaking of the reciprocity, Whitehead tended constantly to exalt the role of nature above that of the percipient event. The "rest of nature" was always the larger agent in the affair, presumably because there is more of it. The active reciprocity of the percipient event with all other events was there soft-pedalled. The insistence was not really mutual. And justice was not done to the characteristic mode in which man is aware of himself as an agent: the subjective activity of a conscious being capable of thinking, and of being the metaphysician, too, who can discuss both himself and nature.

In the later *Process and Reality,* however, Whitehead swings around to a recognition of the "subjectivist principle," as he calls it, in modern philosophy, and he claims it as his very own, but in the shape of a reformed principle.

> The way in which one actual entity is qualified by other actual entities is the 'experience' of the actual world enjoyed by that actual entity, as subject. The subjectivist principle is that the whole universe consists of elements disclosed in the analysis of the experience of subjects. Process is the becoming of experience . . . It follows that the principle of organism entirely accepts the subjectivist bias of modern philosophy.[6]

Emphatically, then, at the end of this chapter on the *Subjectivist Principle,* Whitehead declares: "Finally, the reformed subjectivist principle must be repeated: that apart from the experiences of subjects, there is nothing, nothing, bare nothingness."[7] And he then speaks of an analogy of his philosophy with that of the Hegelians.

The "reformed" way of describing man's situation is then this: "One actual entity is qualified by other actual entities," and this

[5] *Principles of Natural Knowledge* (Cambridge, Cambridge University Press, 1919), chap. i, "Meaning," p. 14.

[6] *Process and Reality,* pp. 252-253. [7] *Ibid.,* p. 254.

being qualified by another "is the 'experience' of the actual world by that actual entity, as subject."

In the older philosophies—not so organismic, of course—this situation would be described as follows: man is affected by other entities in sensation and this calls out emotion and passion, these being his subjective reactions to the initiating action from without; and here man's subjectivity consists in his having those sensations and the responsive affective feelings and impulses. According to Whitehead this instance of sense perception and feeling is only a special case, for it holds generally of all nature that actual entities are "qualified by" each other and by the whole within which they exist. Wherever that is so we have a "subject," and the way of being qualified is the "experience" of the subject. Of course, this is Whitehead's assimilating of man to nature, or, as I should put it using his language, making Nature the dominant insister.

Whitehead seems to have forgotten the *reciprocal* insistence of his original description. What he has now been describing is not the character of being a subject, but rather that of a being always in subjection. It is as if he said that one actual entity is subjected to a modification of itself (is not the "way" an entity, "is qualified by" a modification?) by another entity. It is a subject *qua* a modified entity. Its experience reflects the condition of the entity by virtue of the modification wrought upon it; the entity is thus subjected to an influence from beyond itself, from other entities, and from "all Nature." But if *any* entity is actual, and if actual entities *are* able to qualify others, and if man is an actual entity, why not describe man as a subject in his *actual* character, instead of solely by reference to his passively "subjective" character? Why not have a subject that is a subject, not according to some etymological archeology, but in accordance with man's appreciation of the role of himself as an entity who is conscious of meaning, and of acting from his *awareness* of ideas, meaning, significance? In short, has Whitehead, even here in *Process and Reality,* done justice to what so many philosophers have recognized, that the human mind contributes something significant to the knowledge it has of the perceptions with which it is supplied by nature? Can we not ask whether the active role of mind, and its having hold of meaning which perception does *not* give, is not to be recognized as an insist-

ence in its distinctive way, as mind actually efficacious, "creative," if you please?

The constant use of the passive voice in Whitehead's description is perhaps the sign of an *avoidance* of something real in the "true constitution of our experience." The "creative advance of nature" is apparently not to be individualized in the creative advance of any actual entity: the eulogy is saved for nature and is not appropriate to the individuals. Yet man *knows* creativity in his thinking. He knows it too in the art of aesthetic formation of whatever he finds available through his natural perceptions and feelings, and in his ordering of his own life and of societies of men so as to realize justice and the values of freedom and ethical goodness. He knows his own worth in the religious discipline which enables him to exist with a sense of the presence of God among all else that is present in nature. Philosophy cannot ignore these various manifestations of the human "spirit" (to use this in a nontechnical sense), and all great philosophy has reckoned with it. What we are here envisaging goes far beyond, of course, that elementary view of the role of man and his mind which we described at the outset in the simple statement that "the world is present in perception but *man* understands it." We are now speaking of much more than the intellectual grasp of the world of perception as a world of objects in objective relations. We have expanded that minimal view of the human situation to include the world of fine art, ethical or moral life, and religion, as well as the world of science in all its reaches.

An analogy with the religious view of man's situation is perhaps not out of place at this juncture. Even when God is conceived to be all-powerful and perfect in every way, man has been recognized as an individual with the power of freedom, which of course exposes him to the committing of sin, but which also enables him to look at the face of his God and not merely to be a "subject" of his actual Entity. Theology and philosophy have acknowledged the *actuality* of man in a positive role. And man in this view is not within God, as man is within nature according to the present philosophy.

In any event, the significant philosophy of our day must surely make it intelligible how man can *have* a culture and civilization—science, art, ethics, religion, and social life. It all comes down to "causal efficacy" *in the reverse,* as it were: instead of thinking of

causal efficacy as the condition solely of man's being affected by and informed about other existence, we should think of it, too, as a condition making possible man's transformations of existence in himself and in others and in the world at large.[8]

To sum up this essay in criticism. The objection is not that Whitehead has placed "causal efficacy" first and perception second, but that he has continued to think of causal efficacy in that aspect of the "reciprocal insistence" where other entities (and ultimately all nature) produce qualifications in a given actual entity. The remedy, I suggest, is to take causal efficacy seriously in a perfectly reciprocal sense, and then to recognize what kind of efficacy a "subject" has, not a subjected subject, but one that has itself a spark of the "creative advance" attributed to nature. Secondly, granted for purposes of argument that experience is of activity or causal efficacy, still, why assimilate the activity of an *individual* "actual entity" to the processes of nature which stand in contrast with the processes in man that are so distinctive of him even within nature? Why assimilate the distinctive and contrasting roles at all? Once philosophers assimilated everything to the way of the mind, and tried to convince men that their world was mind-dependent. Men are now supposed to see subjects everywhere where there is process and discernible modification of one entity by another entity. They are to see themselves as passive terms in a relation of causal efficacy. But they are not true subjects then in the sense of being real agents and persons. Their experience so produced upon them does not contain what they are and their power of transforming whatever it may be that affects them and affords them experience.

## II. TRANSITION

We pass from this philosophy to that of those who have a reverse emphasis upon subjectivity and who have swept the field with their existentialist art and discourse.

There is a natural mediating link for such a transition. Whitehead spoke of the "philosophy of organism" as tending *toward* the

[8] See the author's "The Status of Mind in Reality," *Journal of Philosophy*, XXXI (April 26, 1934), pp. 225-235; also his essay, "The Meaning of Obligation," in *Contemporary Idealism in America*, (New York, Macmillan, 1932), pp. 293-295.

Hegelian philosophy.[9] The existential philosophy is a contrary movement, *away from* Hegel. A few passages by way of interlude may be cited.

From the *Preface* to Hegel's *Phenomenology of the Spirit* there is this passage on organic rationale and speculative philosophy:

> In the nature of existence as thus described—to be its own notion and being in one—consists logical necessity in general. This alone is what is rational, the rhythm of the organic whole: it is as much knowledge of content as that content is notion and essential nature. In other words, this alone is the sphere and element of speculative thought. . . . This nature of [philosophical] method, which consists partly in being inseparable from the content and partly in determining the rhythm of its movement by its own agency, finds . . . its peculiar expression in speculative philosophy.[10]

This has relevance to Whitehead.

Then from the *Introduction* to the same work, Hegel's description of what is later referred to as *"Dasein"* or, as I have suggested above, the fundamental situation of man who is conscious at once of his own active knowing and of truth: "Consciousness, we find, *distinguishes* from itself something, to which at the same time it *relates* itself. . . . For consciousness is, on the one hand, consciousness of the object, on the other consciousness of itself; consciousness of what to it is true, and consciousness of its knowing of that truth."[11] Hegel speaks of "mind itself" as "a system of processes wherein it distinguishes itself into moments, but in the very act of distinguishing remains free and detached."[12] Freedom is evinced in such active self-determination of consciousness.

As was suggested above, both activity and cognition are involved in the human situation. Hegel indicates this again in the Introduction to his *Philosophy of Right* where he speaks of will and freedom, saying: "The theoretical is essentially contained in the practical."[13]

[9] *Process and Reality*, p. 254.

[10] Hegel, *Phaenomenologie des Geistes* (Stuttgart, Fr. Frommanns Verlag, 1951), p. 53; tr. J. B. Baillie (New York, Macmillan, 1949), rev. 2d ed., p. 115. (I have changed "scientific" to "philosophical" method.)

[11] Hegel, *op. cit.*, pp. 75 and 77; Baillie, pp. 139 and 141. (I have changed "knowledge (*Wissen*) of that truth" to "knowing.")

[12] *Op. cit.*, p. 254; Baillie, p. 353.

[13] Hegel's *Philosophy of Right*. Translation by T. M. Knox (Oxford, Clarendon Press, 1945), p. 227 (additions par. 4).

Here we are at the threshold or point of departure for existential philosophy. The turn of thought is seen in the meaning of one sentence: "Self-consciousness and existence are one and the same being."[14] Hegel had adventured with "self-consciousness;" the existentialists chose "existence."

## III. THE EXISTENTIAL PHILOSOPHY

This movement in contemporary culture obtains in literature, the arts, religion, and philosophy. But it is not in any way manifest in science. It represents a recoil from science, or rather from a view of existence conceived in the image of the world of realities with which science familiarizes us. Scientific knowledge is neither rejected nor disparaged, however; it is simply irrelevant to the existential interest. It is pragmatized, admitted to have use-value, but is of no value for the life of man filled with subjective concern, with perpetual anxiety.

David F. Swenson well described the existential interest in an introduction to Kierkegaard's *Philosophical Fragments:*

> Taken as a whole, these writings illuminate and bring to a high degree of conscious clarity the subjective life of the human spirit, the life of passion, emotion, aspiration, evaluation, hope, despair, anxiety, dread, confidence, trust, doubt, faith. This is a problem for thought generally neglected by philosophers, or at most merely half-heartedly pursued. They have had much more to say about the environing conditions of life, and about the abstract problems of being and knowledge, than about life itself in its inner core and they have expended a finer workmanship upon objectivities than they have condescended to bestow upon subjectivities. Kierkegaard's writings form an outstanding exception to this general rule; in his case the entire energy of a great genius of reflection was expended upon the clarification of the realm of the subjective, which is the realm of spirit.[15]

One might say even more, that existential philosophy is more than an effort of "reflection" and "clarification of the realm of the subjective," for the writing of these philosophers seems like a creative art, an art of what is individual, personal, subjective in human existence. It is creative because the very expression *makes* the ex-

[14] Hegel, *Phaenomenologie,* p. 186. Baillie in translating reverses, without warrant, the order of "self-consciousness" and "existence."

[15] *Op. cit.,* p. x.

perience, even as it reveals it. It is also active communication, communication not by any formulas or propositions, but simply by the artful description itself. In this respect existential philosophy is like poetry. It aims at an effect in the experience of man. As Helmut Kuhn expresses the idea in his *Encounter with Nothingness,*

> Existentialism is designed to do something to us, to work upon the whole mind, and in this respect it is more authentically philosophical than much of what is included in our academic curricula under the title of philosophy. Existentialism, as it comes in touch with the living mind, arrests its normal processes of thought and will, and then again precipitates them into fresh activity. The rhythm of this action is the rhythm of all life—pause followed by release of energy. But this all-pervasive rhythm is intensified in existentialist thought to the point of violence. The pause becomes crisis, the fresh beginning a rebirth. In this, again, existentialism is faithful to the law in our minds.[16]

Faithful, too, one could add, to the spirit of philosophy. To impart vital self-awareness to man and to aid him in finding his own direction in life, through thinking and the written word, are proper work for the philosopher. There is in these existentialist philosophers the sense of a mission, even of a command, that ought to be obeyed. If one does not practice the existential art, one is guilty of that "neglect of the soul" of which Socrates spoke in olden days. And just as Socrates could do his work only through *dialogue* with others, so, as Karl Jaspers says in his *Europa der Gegenwart,* existential philosophers conduct their philosophizing as a "gemeinsame Lebenspraxis im Werden," a practice of life in becoming oneself, carried on in community.[17]

Sartre has called this philosophic art a "humanism," and Heidegger has commented on it in a *Letter Concerning Humanism* (1947). The intent of humanism at the very beginning of our modern history was to enable man to fulfill himself as a human being in all the relationships of his existence. The intention today is similar in the existential philosophy. There is a difference, of course, for the contemporary humanist no longer works with his eye on certain preconceived models, no "pattern" of perfection, no Platonic ideal, no Christ to imitate, no romantic notion of the "schöne

[16] H. Kuhn, *op. cit.* (Chicago, Henry Regnery, 1949), p. xi.
[17] Jaspers, *op. cit.,* (Wien, Amandus, 1947).

Seele." It is each particular individual himself who is to be cultivated into full existence. Yet we must not infer, because of all this regard paid to the subjectivity of man, that the existentialist ignores the social order, for his constant mention of communication and responsibility shows that he is thinking of man's fulfilment of his existence in community. This is what Jaspers referred to in the above quotation—and it is a tenet of this philosophy throughout Europe and in Latin America.

But now we should plunge *in medias res,* concerning the sense of the term "existence." "Existence" refers to man's own subjective existence as disclosed to each one by the philosophic art of self-examination and communication. It pertains to man *and to nothing else.* It is proper only to human beings, and to them only in so far as they attain to a consciousness of themselves and their situation. Strictly speaking, then, "things" do *not* exist. They may, however, be called "real." Thus science is a knowledge of realities but not of existence, for knowledge of existence is reserved for those who are experienced in this philosophic art. So existence is one thing, reality another. And the more important of the two is existence; and indeed it is the only thing that *has importance* for man.

This is not all a matter of the way we use our words. It may seem as if the existentialist has simply decided arbitrarily to apply the word "existence" to the subjective experience of man, and "reality" to the existence of physical and other things. Now we may object, saying that there are two sorts of existence, first the specifically human and then the physical, and it is quite willful and absurd for the existentialist to withdraw the meaning of existence from things, and retain it only for the subjective life of man. However, such a departure from conventional language may well be justified by its fruits. The use of language in new ways or contexts often seems absurd, but precisely because the apparent absurdity of paradox alerts the mind, it may make one aware of uncommon possibilities of which common usage has kept one ignorant. This is done in poetry and so why not in philosophy, if philosophy is also a means of creating experience and bringing out new modes of "existence"?

The existentialist philosopher has deliberately reserved the term "existence" for the subjective in order to emancipate us from dull-

ing habits of past convention. He is intent on breaking away from the two most powerful lines of thought in the modern world, the Cartesian and the Kantian. He is actually proposing a genuine alternative to both of these established philosophies, and the opening up of a new vista.[18] The strange use of words is not arbitrary but purposeful, and it is even very aggressive.

Three centuries ago, Descartes defined the varieties of being in terms of reality. He established within doubt itself the ineluctable reality of the self whose essence is thinking. He set alongside of this reality of the thinking being the reality of the corporeal being, whose essence is extension. And above them is the transcendent, Infinite Being of God, supreme essence and power. The special problems of Descartes' philosophy were about the *relations* of the two finite forms of reality to each other and to the Infinite Perfect Substance of God. The whole argument had to do with realities. The term existence was not especially emphasized; it could, however, be used interchangeably with reality. Thus Descartes could say: I exist, a thinking being; body exists, extended in space; God exists, the Creator of all things existing. But whether the term reality or existence was used, there was at any rate always a *parity* between man's existence as a thinking being and the existence of body —that is to say, no greater ontological value was assigned to one than to the other.

Halfway between Descartes' time and our own, Kant effected a revolution of point of view with respect to reality. The real is only what is *knowable* in accordance with certain forms of perception and the categories of the human understanding. We are always dealing with phenomena appearing under these limiting conditions, and not with ultimate reals. This is as true of ourselves as of the entities of the objective world. Again, there is a parity in status— ourselves and objects as known to us are alike phenomenal. Our ignorance, too, of ultimate reality holds equally, for persons as for

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[18] The intention of this brief discussion of "existence" is not to run over the history of the meaning of existence but only to relate the existential notion to the familiar modern views. There are other alternatives in both Greek and scholastic philosophy with which the existential view can and should be contrasted in a thorough study.

things. No preference is given to the knowledge and existence of the self.

The existentialists know their Kant thoroughly. Heidegger and Jaspers especially have mastered his thought. They have never mistaken Kant for a "subjectivist" as most of us have done under the baneful simple-minded influence of the idealism of Bishop Berkeley. Kant composed a *Refutation of Idealism* to make his total difference from Berkeley perfectly clear. In so doing he emphasized the view that the knowledge of the objects of nature is *the type* of all knowledge. Nowadays Jaspers protests that this position of Kant forces us to miss precisely what is distinctive of ourselves, because we are here obliged to know ourselves only as we know objects. Kant conceived existence as throughout "objective" and left no room for a *distinctively subjective* existence. And had not Kant actually said that he could only "make room for faith" in personal life, instead of a knowledge of the ultimate reality?

Now we remember that Kant had two interests which it was his aim to reconcile, the scientific interest and the moral interest. Following the first bent of his mind, he had to treat mind and the whole realm of consciousness as phenomenal and not ultimately real. Whatever happens within man's consciousness follows a process no different from that of events in the outer world—all is subject to the conditions of space, time, and causality. No exemption can be made of the subjective. But Kant had this other view of man, too, as a moral being who is free. For man demonstrates that he is free in giving the moral law of his own conduct of life—and this is manifest in one indubitable phenomenon which cannot be reduced to a phenomenon of the spatio-temporal-causal order, the consciousness of duty or obligation. Here man conceives of himself as an end in himself, never merely as a means to an end. Man in this aspect is to be called a person, never a mere thing. Now this great affirmation set a problem of metaphysics: how to conceive of man in these two aspects, as existing in space and time, *and* as a moral being or free person. Kant insisted to the end upon an ontological duality, phenomenal existence and ultimate or noumenal being. A clue to the latter is given to man in his moral consciousness, but it is *only* a clue, and no philosophical account can be given of the noumenal. Thus Kant would never speak of noumenal *existence.*

This exactly is what the existentialists do. They speak of existence as the *authentic* being of man, not occluded by phenomena, but capable of being revealed by the art of thinking and communication. The very thing Kant shied away from, they will boldly dare to do, and with reverse emphasis. It is not natural objects that may properly be said to "exist," but only man as a "subjective" being. And the purpose of existential philosophy is similar to that of Hegel, Husserl, and Bergson, and all great philosophers who were alike discontented with Kant's caveat on man's ability to possess himself of true being. It is not enough to have faith; one must have actual *revelation* here and now. This Hegel had tried to attain by Reason, and Husserl by an analytic phenomenology which disclosed essential ultimates, and Bergson by the life-power of intuition; but the existentialists attempt it in a new way, by a creative art of disclosing the subjective, and by communicating between man and man without dependence either on the coercive force of logical propositions or on any peculiar intuitive function of life working through the intelligent mind.

Thus, existentialism rejects every form of parity between the subjective and the objective, whether it be the Cartesian one of two equal realities, mind and body, or the Kantian one where the self of consciousness is no better known than the objects of consciousness, and both exist on the same plane of appearance. The existentialist then singles out the subjective existence of man as not only *not unknowable* but as the *most authentic* mode of being there is, and one which we can get at and which we can realize by the technique of existential philosophy. This technique does not rely, as I have indicated, either upon rational dialectic as in Hegel, or upon analysis of phenomena as in Husserl. It is a technique like that of art, which both creates and reveals—the process is one and the same—and it does not *argue* to bring men to the same opinion, but yet it communicates and brings men together in life and society.

I have painted here a bright existentialist vision and hope. But what is very much more in evidence, in the existentialist writings, is the dark sense of anxiety, even of despair, and a desperate judgment upon the present world as a Godforsaken world. I am thinking here particularly of Heidegger and Sartre who make so much of the negative, or rather of nothingness.

At this juncture we encounter a diversity of view which almost prevents us from giving any further general characterization. Sartre and Heidegger depart from Kierkegaard, and from each other. Jaspers holds to the line of Kierkegaard as well as to much of traditional philosophy. In the present essay something will be drawn from all three contemporaries, but the fact that they are taken together in the argument of this paper is no warrant for treating them as one "school."[19] It is only a movement which we can talk about here, and the points of contact are not ones common to all. Yet there are two notions that seem to have largely a common significance for the various parties, and which are characteristic of the movement: "Dasein" and "freedom."

"Dasein" is very particularly associated with Heidegger, whom we may call, using language quite foreign to the subject, "the heavyweight," as metaphysician of the movement.[20] Heidegger usually requires for understanding a sensitive absorption in his language and its metaphors, for he dares to redesign the very root meanings of the German language. We can only assimilate Heidegger if we can relate somehow the elements of the structure of his thought to a more familiar structure. For my own part, I have tried this in terms of that earlier description given of the human situation, which, in Heidegger's terms, is "Dasein." The basic statement of the situation must be slightly modified to include "Mit-

[19] The omission of Gabriel Marcel may be noted and should therefore be explained. The comments in this essay are restricted to those who confine themselves to man and the world, or to the world of man, excluding the further dimension of the relation of God to man and the world. Of course, no adequate discussion of the existential philosophy can be given without devoting considerable attention to the work of the theistic existentialists of whom there are many important ones besides Marcel.

[20] Cf. James Collins, *The Existentialists* (Chicago, Henry Regnery, 1952), pp. ix-x, 173, 185. He uses more classic language in expressing the same opinion. Of course Heidegger would absolutely reject the suggestion that he is a metaphysician, for he claims only to be laying the necessary foundations for an ontology. The ontology is then the ulterior object of his interest and effort. But since it cannot be anything not prepared for in this propaedeutic, and further, since we have generally learned through other experience that means and ends are organic to one another, what we already have in Heidegger's work is metaphysical thinking. Unless the ontology is actually forthcoming, Heidegger's *Sein und Zeit,* with its subsequent appendages of explanatory essays, will be taken to be his metaphysics whether he likes it or not.

dasein," or "Mitsein," and would read: "Man finds himself *in* the world *with* other beings, and knows himself as a being who *acts* as well as one who is acted upon—so that the relations of man and the world are simultaneously cognitive and active."

But we must be careful not to interpret this in terms of cognition or even consciousness. The basic situation is one below the level of consciousness. Heidegger's is a "depth phenomenology," so to speak. Illustrative of his view of man's existence are passages from *What is Metaphysics:* "The essence of man's being lies in its existence,"[21] and another, "the existential being of man is the ground of man's *representation* of being and of his consciousness thereof."[22] Thus consciousness, perception, discrimination, and the like, all this is posterior to man's primordial existence.

But what of the "world"? "Dasein" is *in* the world. This philosophy cannot avoid assertions about the world since the concept of it is involved in the human situation. "The world belongs to man's selfhood as essentially related to it."[23] "The world means exactly man in the totality of his relations to other ontic beings."[24] Here, once more, is that "reciprocal" character which Whitehead also recognized. Man is *in* the world; but still the world *is his relation with* other beings. This is a position where adverbs of motion and action are needed for the phenomenology. And a further new depth and complication is revealed through the inclusion of concern, dread, anxiety. Hence that ancient image of the world, as standing over against man and in sheer contrast with his own transient being no longer obtains. Moreover, the philosophers of existence—whether Sartre or Heidegger or Jaspers—do not envisage the world itself as neutral, so to speak, to man's existence. They see something other than that impassive permanence of Being which in its high ration-

[21] Heidegger, *Was ist Metaphysik* (Frankfurt, Klostermann, 1949), 5th rev. ed. with an Introduction, p. 13; this phrase repeating one from *Sein und Zeit*, p. 26.

[22] *Was ist Metaphysik*, p. 15.

[23] Heidegger, *Vom Wesen des Grundes* (Frankfurt/Main, Klostermann, 1949), p. 35: "Zur Selbstheit gehört Welt; diese ist wesenhaft daseinsbezogen."

[24] *Ibid.* I use the translation of the senior thesis of a Yale student, Laszlo G. Versenyi, "The Thought of Heidegger" (unpublished), p. 33: "Welt meint gerade die Menschen in ihren Bezügen zum Seindem in Ganzen."

ality once set a model, and indeed, held a hope for man who would imitate it. Instead, they implicate the so-called objective world itself in all the temporal vicissitude of being as man himself experiences it. There is no timeless absolute Being, but always only being-and-time (*Sein und Zeit*).

Consider at this point the lighter version of this philosophy in Sartre, and Sartre's paradoxical words: "The Universe is absurd." To most of us that proposition itself seems absurd. The world absurd, the world which science discovers to be an order of law! Surely, if anything is rational and not absurd it is the world of which we have knowledge in science. But these philosophers have no intention whatsoever of denying science and the rationality of the world as it appears, rendered in the formulas of science. In that respect, that is, in its mathematical-physical transcript, the Universe is no more absurd than science itself, which is certainly never guilty of absurdity. Well, then, explain yourself, we demand, in what sense *is* the Universe absurd?

I shall try to answer this by placing that assertion in a perspective, and pointing to its positive intent, for the paradox may not be indulged for its own sake.

There has been a modern scepticism about the concept of "universe" operating underground, as it were, ever since Hume. Are we entitled, on the basis of our empirical way of knowing, to the very concept itself of a "universe"? Hume taught that we have a human propensity to take Nature as strictly uniform, and to expect the same causal connections to obtain for all time as we have observed in our limited past experience. True, we can always see a little way ahead and can usually tie in new observations with the regularities we have experienced previously; but we are always engaging in a hazardous business here and should not blindly assume that what we have learned in one corner and for a very brief time will hold for the whole show throughout all time to come. There is not an assuredly tight little system of a Universe on which we can trust for the certainty of our laws of Nature and man. Time is real, and time means, if anything, an endless future of novelty. Hume said therefore that we only *believe* in a Universe, and do not truly *know* it as what we assume it to be, an order of absolute, universal law.

This sceptical view of time and the Universe has proved very use-

ful to the existentialist whose concern is with man living in the world of time.[25] For if one were to adhere to the pre-Humian philosophy he would have to include man among the other things, and subject him to the universal laws of nature. Then our belief in the Universe must result in a *disbelief* in the freedom of man. And *this* is what is absurd. For the existentialist is reasserting Kant's great affirmation, that man exists as a free being.[26] But if believing in a causal universe of necessity nullifies this belief in man and his freedom, then it is that more pretentious and quite unfounded belief in the Universe that is absurd. It shocks the more important conviction of man, which is that he truly exists in freedom.

But there is a deeper and more historic form in which man has seen "the world" implicated in his own existence and destiny, and consequently colored by his sense of his own situation and predicament. We should remember here the tonality of the language of St. Paul and St. Augustine in speaking about "the world." It was not declared to be absurd; but it was condemned as being now contrary to what God intended it to be at Creation. The blight of sin affected the Universe which needed also to be redeemed. Some existentialists, notably Kierkegaard, repeated this ancient judgment of God upon the world, upon the nations, and upon the secular preoccupations, interests and illusions of modern society. It is of course the *social* world they chiefly have in mind. Kierkegaard attacked the commercial ethos (or lack of ethos) of the nineteenth century; he attacked Christendom, which should stand out against "the

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[25] See especially Kierkegaard's *Philosophical Fragments,* where he is discussing necessity (pp. 63-66).

[26] When Sartre elaborates upon the extent of freedom, showing that it pertains not to the conscious will alone but to the very desire, "passions," and perception of man, he is exploring a vein of thought which T. H. Green had previously followed out in his *Prolegomena to Ethics* (Oxford, The Clarendon Press, 1906). Cf. Bk. II, "The Will," chap. i: "The Freedom of the Will," esp. secs. 97, 102-106, 114; chap. ii, "Desire, Intellect and Will," secs. 118, 120, 125-128, 146-147. See Sartre, *L'Etre et le néant* (Paris, Gallimard, 1949), 25th ed.; Quatr. Partie, "Avoir Faire et Etre," chap. i: Etre et faire: la liberté, esp. pp. 512-527. "C'est donc par le jaillissement même de la conscience engagée qu'une valeur et un poids seront conférés aux mobiles et aux motifs antérieurs" (p. 527), and "l'acte fondamental de liberté . . . est choix de moi-même dans le monde et du même coup découverte du monde" (p. 539).

world" and instead was only part and parcel of it, blessing what deserved only to be cursed. But it is not necessary to be a believing Christian to repeat this scorn of the world. Heidegger has described very effectively the stupid anonymity of man in contemporary life, and the lack of awareness of any significance in his own existence. Sartre speaks of nausea. These atheistic existentialists give as good a picture of futility as did Pascal in his *Pensées*. The world is waste land, and man needs to be made aware of its absurdity in that sense.

Indeed, all this talk of "the absurd" means absurd in relation to man and his existence. The way man is going presently leads nowhere, like the woodways that lead one up the mountain and dwindle away to nothing, blind alleys (*Holzwege*). The nothingness of life in the world is its truth, but man masks from himself this truth of his failure to *exist* by occupying himself with social business and other engrossing interests. Since man is there in the world (*Dasein*), this experience of life is inevitable, and one must go through with it and *realize* the truth, that death is the end of life. Only the man who takes that into his consciousness truly lives and is free. Heidegger uses the word death synonymously with nothingness.

People who read the existentialist philosophers first hear them saying: "This world is absurd; it means nothing but death, nonexistence for man." But before they are completely dismayed they hear a companion message: "Listen, man, you are, for all that, free. Exert your freedom, spite of the world. Make of your own existence what you can, in the face of the so-called world and civilization in which you are living. Be free, live, exist in your own style." And to some who hear but turn away the philosopher says: "Ah, you are afraid of freedom. You don't want to be on your own responsibility. But courage is a man's manliness."[27] On this score Tillich the Protestant thinker is in agreement with Heidegger and Sartre, for he has spoken on this theme, *The Courage to Be*.[28]

The intent of those dark existentialist sayings about the world is always to elicit both man's belief in his own freedom and his active

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[27] Sartre, *L'Etre et le néant*: "Je suis condamnée d'être libre" (p. 515).
[28] Paul Tillich, *Terry Lectures* (New Haven, Yale University Press, 1952).

courage to make decisions on his own responsibility, without reliance on any authority. This is what is ethically positive amidst all the portrayals of the negative elements in human existence.

This philosophy embodies the reflections of men who have survived two world wars and who see deep concatenations of causes that spell the doom of an epoch and the need of decision in man. They hark back to Kierkegaard who, like Marx, was reacting against the radical faults of man and society in their time. But both of them, as well as the existentialists who came later, were also reacting against the metaphysics of Hegel, which had made too good sense of the times and of history. They all seem to be post-Hegelians, yet resentful of their descendance and resisting the dangerous allurement of Hegel's intellectual system. Nietzsche was very acute in observing that a philosophy which is a reaction has *need* still of the doctrines against which it is defining itself. Now here the strange truth of Hegel's dialectic can be seen. It is a sort of revenge, for the truth cannot lie wholly with the existentialist if the latter must needs have the philosophy of Hegel in order to carry on. It would seem safe to predict that the thought which is to be adequate to the interpretation of man's situation today cannot follow in the line of existentialism *tout pur,* but will include within it something essential from Hegel; and particularly relevant is this thought: "Consciousness, we find, *distinguishes* from itself something to which at the same time it *relates* itself."[29] That something distinct with which the subject comes into relationship is more than a world envisaged only as "the totality of man's relations to other ontic beings." Justice is not yet done to what is meant by the "objective" and the "world." The balance will have to be redressed, for existentialism is philosophy still in unbalance. The subjective is overrated.

The Sartrean dictum, "existence precedes essence," deserves the final comment. This, too, is a turning topsy-turvy of Hegel's thought. According to Hegel, knowledge is man's possession of the essence of anything that exists. And Hegel had a large, generous and ambitious conception, comparable to that ancient humanistic motto, "nothing human is alien to me," for he says in effect, "noth-

[29] *Phenomenology of Spirit,* Baillie translation, p. 139.

ing that exists is alien to spirit." Perhaps he was one-sided, seeing only spirit and reason. But the reacting existentialist is too defiant of reason, too jealous for subjectivity, when he argues: the existence of man is precisely what cannot be gathered into an intellectual Idea of Reason. Man exists before he knows about himself—and his existence always "precedes" his essence. Indeed, by his own decisions, man *makes* himself what he is; there is no fixed nature of man, no necessary inner kernel of being which determines him to be and exist as he does; man is absolutely free. Here existentialism utters an invigorating declaration of independence for man, a reassertion of individual and personal freedom, and a re-heartening of man to attack the problems of himself, society, culture, and the world, and not fatalistically to feel that it is all too much for him. Existentialism in this respect is adrenalin. Yet it repudiates determinism at the cost of man's inner being, for in treating any determinate character of man as a bar to his freedom it empties "essence," the true being or nature of man, of all meaning. And what sense is there in talking about "humanism" when there is no "humanity" to know?

This doctrine regarding essence-and-existence is therefore fruitless, and if existentialism adheres doggedly to the position, it will prevent itself from ever developing further as a philosophy, for it cannot gain any consistency in knowledge and life by deriving essence from actual existence even in the case of man. One draws a blank in the very next move. For example, one cannot get anywhere with the "absolute paradox," as Kierkegaard called it. "The supreme paradox of all thought is the attempt to discover something that thought cannot think." Once we know that, thanks to Kierkegaard, we simply stop thinking.[30] Then, too, Jaspers in the *Geistige Situation der Zeit* has further exposed the futility: "Existential philosophy would be really finished if it were once more believed that one *knows what man is*. For I am not what I know myself to be and I do not know what I am. Instead of knowing my existence I can only institute the process of becoming clear about myself!"[31]

That the self is elusive Socrates knew, long, long ago. But the

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[30] *Philosophical Fragments,* chap. iii: "The Absolute Paradox: A Metaphysical Crotchet," p. 29. [31] *Op. cit.,* pp. 178-179.

demand upon man is still *"know thyself."* An existence which is present to lure man on to think about it is not absolutely unknowable by the mind of man. It may well be, as Heidegger and Jaspers both say in effect, that we must retrace the steps taken by Plato, Aristotle, Aquinas, Descartes, and Hegel, and get back to the beginning of a "philosophy of man" with Socrates, or even with the Pre-Socratics! But why then encumber our fresh innocent search for the truth with a lingering hatred of Hegel and essence, and with paradoxical shibboleths that tell us we have a problem and cannot possibly solve it? If existentialism is to stay a philosophy and not become simply part of a psycho-therapeutic process directed by esoteric practitioners, it will have to think out the relation of essence and existence in such wise that those who follow in *their* way can not only be free but also inspired to seek the *truth in knowledge,* and to integrate the science of the objective world with their knowledge of man, and thereby to achieve life in community through the very unparadoxical and simple method of common understanding.

The sum of this criticism follows: The existential philosophy is an expression of man's deep and far-reaching concern, a concern about man himself and his situation today, his culture, history, significance. This philosophy is no system, much less a doctrine, but an art of self-awareness and of communication between man and man. And the object is not knowledge for itself but to find oneself, to find one's direction, to realize one's responsibility. These are its ethical moments. But it has an artistic character, too, for it is imbued with the maker's spirit, the poetic faith, which the arts of word and other portrayal "make" the very experience of man. There is a freedom in this art. It is the more so the more man faces the nothingness of his pretentious life and world and realizes the anonymity, the dread, anxiety, nausea, and so forth. It then invites man to courage. And all these characters of man's "existence," when he lives thus existentially, must be acknowledged in one's theory of being or existence. What people might refer to, slightingly, as being mere subjective feelings or emotions have more significance than that depreciatory way of speaking about them. Anxiety is no atomic emotion. It is a central stem of experience characteristic of all human life. So is the sense of nothingness which few realize and face and take into their reckoning. But these active responses of

man to existence are no less essential to his being—the responsibility or the courage. Thus what once seemed purely affective subjective states, disparaged in contrast with objective factors, become inherent in the constitution of experience or existence. The subjective is of the essence of being and becoming.

The existential philosophers cultivate the subjective and "existence" without arguing with science about claims to knowledge. There is no rivalry contemplated. The relationship is not unlike the relation of faith and knowledge in older religious philosophies, with faith being the living experience. Science has a value, a determinate, pragmatic, instrumental value. But the goal of this philosophy is not use but truth. And it bears witness to the absoluteness of human freedom, whereas according to scientific criteria there can never be anything but a meaningless determinism.

But even if existentialism manages to preserve its art and truth from comparison with the ideals of scientific knowledge, it cannot escape the *philosophic* task of justifying its knowledge and its truth. Many problems lie ahead. And one is already apparent: that in vindicating the freedom of man the existentialists do so at the cost of the meaning of essence or the nature of man, the very idea of humanity. They thereby preclude themselves from recognizing anything determinate in man, anything objective and knowable. There is also, it seems, a sort of fear of admitting the objective as well as the essential, lest it involve them in thinking of the world of science in conjunction with man, thus returning them to a traditional problem of philosophy which seems so stale and unprofitable to them.

They may assert freedom *à l'outrance,* but they do not gain exemption thereby from the responsibility of following the philosophical argument, something they cannot choose.

## AFTERTHOUGHT

These concluding comments and those earlier on the philosophy of Whitehead point in a common direction. There is work ahead on the significance of the self and the "subjective mode of being." Whitehead has not done justice to the subjective, and the existential philosophers have egregiously overshot the mark. One philosopher of our time saw the mean between these extremes and proceeded to work at the problem with genius and balance of judgment—the

late Archibald Allen Bowman. He had rare insights into what he called "the subjective mode of being," wholly independently of the existential writings, and he had begun in his *Sacramental Universe* upon an original metaphysics in which the physical mode of being and the subjective mode were related and distinguished under a concept of system and function. Here is something still to be explored—a metaphysics that is an example of the ideal I have had in mind throughout this essay.

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# ETHICAL EMPIRICISM AND ITS CRITICS*

## I

A DECADE or so ago, empiricism or naturalism in ethics and value theory—represented by such men as Santayana, Perry, and Dewey—was dominant in American philosophical thinking. But by a rapid turn of events, this tendency now finds itself on the defensive in public discussions; some onlookers might say from reading recent issues of the philosophical journals that its withdrawal is so disorderly as to suggest a rout. This change has come about mainly through the swift advance in this country of the analytical movement in its various branches, and constitutes a kind of invasion from such centers of philosophical concentration as Vienna, Oxford, and Cambridge.

The dispute in question is largely independent of the quarrel between naturalists and supernaturalists in general philosophy. While the recent revival of religious interest among intellectuals—notably the attention that has been paid to the psychological functions and the symbolic values of religion—has, I think, given us reason to enlarge our conception of the moral experience, the most damaging attacks against naturalistic ethical theory have not been delivered by the long-standing enemies of ontological naturalism, the supernaturalists, though these have lately stepped up their hit-skip bombing of the naturalist bastions. The blows that have hurt most have come not from overhead but from the flanks, and for the most part from those who have been allies, or at least neutrals, in the general alignment of naturalists vs. supernaturalists. On the Right flank, a very precisely calculated barrage has been aimed by the intuitionists or ethical nonnaturalists, including Moore, Broad, Ross, and Ewing. The emotivists, led by Carnap, Ayer, and Stevenson, have conducted a brutal tank action from the Left. The latter group are professed naturalists and empiricists in general philosophy; and although the intuitionists of course hold to a rationalist rather than an empiricist methodology, most of their

* Read before the Harvard Philosophy Club, Cambridge, Mass., and at Johns Hopkins University, Baltimore, in March, 1952.

leading representatives have not based their opposition to ethical naturalism on any appeal to transcendental or supernatural sources of moral insight, but rather they invoke the *lumen naturale*.

In the past few years, still another contingent has appeared on the fringes of the battlefield which has not aligned itself with any of the older belligerents. The members of this group take part in the tendency often called the Philosophy of Ordinary Language, but for present purposes we may refer to them simply as the Younger British Analysts; the chief spokesmen so far in ethics—though their writings have been scanty—are Toulmin, Hampshire, Strawson, Hare, and Hart,[1] all of Oxford. While these men have carried on the attack against certain tenets attributed to ethical empiricism along lines opened up by the intuitionists and emotivists, they have at the same time rejected the central positive doctrines of these groups in such a way as to bring them closer in other respects to empiricism. Although the younger analysts for the most part have limited themselves to sniping action against the other forces, some of them have hinted at the possession of secret weapons, possibly forged in the arsenal of Wittgenstein, with which they threaten to vaporize empiricists, emotivists, and intuitionists alike in a nuclear explosion aimed at destroying the battleground of value theory or metaethics itself.

What I shall try to do in this paper is not to intensify the battle among these factions—which seems to have reached a hopeless stalemate along the present entrenched positions—but rather to explore the chances of effecting a negotiated peace that will reestablish intellectual commerce among them in such a way as to enable them to get on with the attack against the common enemy, which is confusion and ignorance about matters of the highest import to all of us.

What such men as Mill, Santayana, Perry, Dewey, and Lewis

[1] S. Toulmin, *An Examination of the Place of Reason in Ethics* (Cambridge, England, 1950), and "A Defense of 'Synthetic Necessary Truth,'" *Mind*, LVIII (April, 1949); S. Hampshire, "Fallacies in Moral Philosophy," *Mind*, LVIII (Oct., 1949); P. F. Strawson, review of Ewing, *The Definition of Good in Mind*, LVIII (Jan., 1949), and "Ethical Intuitionism," *Phil.*, XXIV (Jan., 1949); R. Hare, review of *Value: a Co-operative Inquiry*, ed. Lepley in *Mind*, LX (July, 1951); H. L. A. Hart, "The Ascription of Responsibility and Rights," in *Logic and Language*, ed. Flew (New York, 1951).

(who is an empiricist in value theory though not, it appears, in ethics) have in common is primarily the assumption that an empirical logic and a naturalistic world view are sufficient to deal with so-called normative activities as well as with the domain of factual inquiry. But as the term is currently used, ethical empiricism or naturalism has been defined largely by its critics, notably Moore and Broad. A naturalistic or empirical position in ethics, then, is held to be one which commits the "naturalistic fallacy" in some one of its various forms. Or, since Frankena[2] has shown that the alleged fallacy is not, strictly speaking, a fallacy, but if mistaken some other kind of mistake, naturalism or empiricism in ethics is taken in recent discussions to be a position which holds one or more of the following theses, all alleged to be erroneous: (1) That the meaning of a normative term can be analyzed without remainder into nonnormative or factual characteristics; (2) That an ethical term can be defined by means of non-normative or descriptive terms alone; (3) That a normative judgment is a descriptive or factual statement rather than some other kind of expression such as an interjection or a command; (4) That a normative statement can be inferred, deductively or inductively, from nonnormative premises alone.

Whether the naturalists in question have actually committed the "naturalistic fallacy" in precisely these forms is, as I shall try to show later, doubtful. But regardless of the historical accuracy of the criticisms, they have at least directed our attention to certain important logical and semiotical questions which empiricists have not considered sufficiently hitherto, and to which I believe none of the parties to the controversy has yet found an adequate solution.

The weight of the accusation against empiricism consists in the view that a normative term such as "good" or "right" means at least something more than, and possibly something different in kind from, any factual or descriptive term such as "pleasant" or "capable of arousing interest" or "conducive to happiness"; and that any normative judgment such as "This is good" or "This is right" must be analyzed as something other or more than a simple description or prediction verifiable by empirical evidence.

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[2] "The Naturalistic Fallacy," *Mind*, XLVIII (Oct., 1939).

When the empiricist—as his language so often suggests that he is doing—simply identifies goodness with any such factual characteristic as pleasantness, or when he reduces a normative statement to a descriptive assertion, there arises, according to his critics, a particularly worrisome predicament which we may call the Mountain Range Effect in ethics. If the empiricist defines the intrinsically good as the pleasant, so it is asserted, we can always ask him, "Yes, but is this a *good* pleasure?" or "Is it good to seek pleasure?" If the empiricist says that "x is right" means that "x will harmonize the interests of all concerned" or "x will lead to the maximum of happiness," the rejoinder is: "But is it always *right* to seek harmony (or happiness)?" Since such questions do not seem to be mere meaningless tautologies, the critic concludes that the empiricist in his definitions and analyses is begging the question, and that in attempting to explain the normative he is leaving out its essential characteristic. Whatever reply the empiricist makes to such questions, he must either characterize the normative further in descriptive terms—in which case a new normative question can be asked—or else he smuggles a normative term into his analysis without admitting it. Just as the mountain climber, in trying to cross the Alps or the Rockies, struggles to the top of a ridge only to see another and higher range looming before him, and conquers that only in order to be confronted by still another range, and so on indefinitely, so with the empiricist in trying to subdue normative expressions. Behind every factual meaning to which he claims to have reduced the meaning of a value term there looms up a new value to be accounted for; after every resolution of the "ought" into an "is," the empiricist seems to be confronted by a new "ought," and so he appears to be enmeshed in a hopeless regress. The Alps rise ever higher and higher, and by this route, it is claimed, we can never pass over the watershed to descend to the flatland in possession of a workable theory which would enable us to dispense with further theoretical problems and get on with the practical business of living. The empiricist, if his critics are right, is condemned to an ever wilder debauch in the winter resort country of metaethics, and forced to befuddle himself with ever more heady stimulants, until finally he must collapse and be enveloped by the eternal snows.

## II

The intuitionist way of avoiding such a regress is to conjure up a nonnatural quality or relation, known by a priori intuition, to which ethical terms refer, and which gives the term its distinctive normative force. Such intuitions tide the nonnaturalist over all the difficult passages in ethics. If we have such an intuitive grasp of normative meanings, then we can recognize the presence of normative properties when they occur. Intuition is also invoked to deal with a problem which has caused the intuitionists much concern: that of connecting the nonnatural property of goodness or rightness with certain natural or empirical observable characteristics which contribute to the goodness or rightness of an object or an act. In Broad's language, this is the problem of connecting the good with the good-making, or, as Moore puts it, the ought with the ought-implying.[3] These connections, according to Broad and Moore, are synthetic a priori. Finally, intuition is offered as a solution to the problem of justification or validation of both normative judgments and metaethical principles. Since the intuitionists in both cases reject the ordinary methods of empirical validation, they have recourse to special a priori ways of establishing such principles and judgments.

The intuitionist answers have not proved convincing to any of the other schools. Other philosophers have not been able to identify in objects or in their own fields of awareness anything recognizable as a nonnatural property, nor are they able to achieve any a priori intuitions having the certainty and infallibility claimed for them. Even more important, the type of rationalist methodology and epistemology on which the intuitionist view rests has been widely discredited in other fields, such as mathematics, having more tenuous connection with matters of fact than ethics, and the persistence of such a methodology here is suspect.

Nevertheless many of the intuitionists' critical analyses are so acute that they cannot simply be shrugged off as resting on hallucinations. We may ask, then: What makes intuitionists think they have intuitions?

[3] C. D. Broad, "Certain Features in Moore's Ethical Doctrines," in *The Philosophy of G. E. Moore* (Evanston and Chicago, 1942), pp. 63-64; and G. E. Moore, "A Reply to My Critics," *ibid.*, pp. 604-606.

They have, I think, got hold of something, and this consists of a working grasp of the global meaning or total functioning of a normative term, so that when an empiricist defines the intrinsically good as pleasure or the right as conduciveness to the integration of interests, the intuitionist replies: "No, not that" or "No, not just that—it means at least something more than that." The intuitionist is sensitive to the nuances of ordinary language; he is well trained in the use of his mother tongue, and his operative understanding of it enables him to tell when a term is given an inadequate analysis, even though he himself is not able to supply an adequate analysis in its place. Instead, he invokes an ineffable property which, like the God of the mystics, is characterized largely by negations such as "nonnatural."

Before we succumb to such a desperate remedy, we can try out another general type of answer offered by the emotivists and, more subtly, by the younger analysts. The "something more" involved in the meaning of a normative term consists, according to them, in our working grasp of the noncognitive functions of the normative expression. Such an expression not only describes its referent, but has still another sort of function, which is called variously, and with greater or less adequacy, the "imperative" or "emotive" or "persuasive" or "prescriptive" or "ascriptive" or "gerundive" meaning. When I say "I ought to do x" this noncognitive function is not a property asserted of x, but a property of the verbal expression which refers to x; that is to say, of the sign rather than of the thing signified—and it is this function that is distinctively performed by the sign "ought."

Now I should like to propose a threefold terminology for the analysis of normative expressions which I think has advantages over the terminologies now in use, such as the distinction between the "good" and the "good-making." This is that we analyze the functioning of a normative term into three factors: the Matrix Meaning, the Identifying Property, and the Conferring Properties.

The Matrix Meaning—or Meanings, if there are more than one—of any normative term conveys its noncognitive function or functions. It is that feature we are inquiring about when we ask, What is the peculiar role of the normative term which enables us

to call it normative rather than descriptive? The Identifying Property and the Conferring Properties, on the other hand, are referred to when we ask a different type of question: What properties must something (an act, object, or experience) have if our cognition of it is to perform this normative function? The Identifying Property consists of that property, if we can find one, which is common to all the things identified by the term in any univocal use of it; it thus serves as the defining property. The Conferring Properties consist of those properties of the thing which cause it to have, or contribute to its having, the Identifying Property under various circumstances. Each normative term, such as "ought," "intrinsically good," and the like, has its own characteristic meaning in each of these three modes.

Let us start with the Matrix Meaning of "ought." It seems promising to work on the assumption that its Matrix Meaning is the basic normative meaning, and that the Matrix Meanings of "good," in its various relevant senses, are functions of it. And conversely, that the Identifying Property of "intrinsically good" is basic, and the Identifying Properties of the other concepts are analyzable by reference to this.

Possibly the Matrix Meanings of "ought" are a cluster rather than a single meaning; but if there is a fundamental and central meaning, "prescriptive" is a more eligible word to designate this noncognitive function than is, say, "imperative" or "emotive." "Imperative" suggests a command by a superior officer, or *imperator*, who gives no reasons; whereas the "ought" that ethics has traditionally been concerned with concludes a process of investigation and deliberation, just as a medical prescription follows from a diagnosis (if we take an optimistic view of doctors). The term "emotive" as used by Stevenson[4] has even more misleading suggestions. Stevenson's type situation is that in which two people, or the two souls that dwell within the breast of one man, are engaging in a debate. Each party has an ax to grind, and in the case that especially interests Stevenson, a different ax. The counselor, an interested party, is trying to alter—i.e., to arouse, intensify, or divert into different channels—the attitude or motivation of the

[4] *Ethics and Language* (New Haven, 1944).

agent. In Stevenson's "non-normative metanormative inquiry,"[5] or semantics of moral rhetoric, anything goes—anything from rational analysis of consequences through threatened coercion to verbal seduction—which will move us, though Stevenson here and there expresses a personal preference for the more refined types of persuasion.

Stevenson starts his analysis from a very special type of case, and consequently complicates the problem unnecessarily by seizing on the motivative function as typical. Suppose, following Hampshire's suggestion,[6] we start our analysis not with a debate but with a case in which a moral agent is trying to decide for himself what he ought to do. Various aspects of the alternative acts contemplated may be in question, but when the moral agent reaches the conclusion, "I ought to do x," the primary and characteristic function of the statement is to release action, either immediately or after a necessary delay, and to do so as a result of reflection. So the Matrix Meaning of "ought" here is to prescribe an act and thus to guide conduct by knowledge.

When we talk about the Matrix Meaning of "ought" we are talking about the characteristic kind of prescriptiveness which attaches to a term whose meaning has been forged in the long process of moral experience and in the long effort of the human race to guide its action by knowledge of itself and its world, physical and social, and to devise a language for that purpose. The signs operative in animal behavior—the buzzer for Pavlov's dogs, and so on—also have a prescriptive function, attaching to a rudimentary type of perceptual cognition. The prescriptiveness of the ethical term "ought" is continuous with this primitive animal prescriptiveness, but reflects the enormous complications springing from the development of the human capacity to devise and use symbols, and from the recognition of factors in the situation of which the symbols enable us to take account. The primitive dynamism of the sign for the animal or the baby thus serves simply as a matrix out of which our sharpened ethical meanings have been formed. In both the human and the animal sign, the prescriptive function is a dis-

[5] Brandt's Questions about Emotive Ethics," *Philos. Rev.*, LIX (Oct., 1950), p. 528. [6] *Op. cit.*, pp. 466-67.

positional property of the sign rather than a property of the object, though if we ask how the sign acquired and retains this dynamic property, the answer must be that it is derived from the dynamic factors in the organism and its objects. When these properties are referred to as simply cold "descriptive" properties, their dynamism has been overlooked. What could be more "magnetic" than joy and the objects which confer it? What could be more propulsive than suffering and the situations which threaten to impose it? The energy of the sign is thus derived from the energy of the elements which it organizes, but nevertheless a transference has taken place so that the dynamism now attaches directly to the sign rather than to the elements.

What the ethical sign prescribes, as I have said, is an *act*. Now an "act"—or any considerable segment of behavior, human or animal—has all of the following five aspects: an act is cognitive, purposive, skilled, motivated, and affectively toned. The deliberation—which is a characteristically human feature of the normative situation—may call into question any or all of these five aspects, and may alter any or all of them as originally contemplated. The reasons given in the deliberation need not be, as in Stevenson's typical case, directed toward altering the motivation. The individual may be already motivated, and correctly motivated, so that the problematic element is the end to be adopted, or the skill to be used, or the knowable circumstances, rather than the motivation. When we thresh out a moral problem thoroughly, probably all five of its aspects have to be brought under scrutiny. But in the crucial case we start the deliberation because we are faced with the urgency of action, and hence the "ought," whatever else it may incorporate, is a signal to wind up the deliberation and to start acting. What it prescribes is the act as a whole, in all five of its aspects.

There are in certain contexts special uses of the "ought" which refer primarily to selected aspects of the act, and also derived uses, where the "ought" does not directly release action: e.g., when I ask whether Brutus ought to have stabbed Caesar, or what the President of the United States ought to do about Indo-China, or what I ought to do next year if such and such a situation arises. Here the descriptive meaning is to the fore rather than the prescriptive, but the "ought" nevertheless makes a statement *about* a con-

templated prescription, past, present, or future, even though it does not have the force of prescribing.

It seems plausible, furthermore, that when other normative concepts besides "ought" are used with the force of their Matrix Meanings they are *conditional* prescriptions. So that "x is good" prescribes the seeking of x, or acceptance of x, under certain conditions, expressed or unexpressed, fully explored or only partially explored. It induces not action but a readiness to act, or prepares a prescription to be executed when the stated or assumed conditions are fulfilled.

From the foregoing, we may conclude that if an empiricist analyzes a normative term without remainder into the factual properties of the things designated by it, or if he treats a normative judgment as merely a descriptive statement about the object, he is leaving out something that he should include and therefore is committing a form of the naturalistic fallacy or the empiricist error. But actually I believe that none of the leading empiricists has quite done this. Mill said that the distinctive function of a practical judgment was to propose an end rather than to state a fact.[7] According to Santayana, "Rational ethics is an embodiment of a living volition, not a description of it. It is the expression of living interest, preference and categorical choice. . . . The rational moralist is not . . . a mere spectator [but] represents a force energising in the world."[8] For Perry, evaluation is criticism, not description, and an interest judgment states the cognitive expectation but assumes or expresses the attitude or governing propensity which is the dynamic element in the situation.[9] For Lewis, "the primary and pervasive significance of knowledge lies in its guidance of action: knowing is for the sake of doing," and value judgments have their cognitive and their imperative significance at one and the same time.[10] According to Dewey,[11] valuations are not merely descriptive but possess the peculiar function of being reconstructive of the situation. When a critic asserts that empiricists have ignored or denied the

[7] *Utilitarianism*, chap. iv, and *A System of Logic*, Book VI.
[8] *Reason in Science* (New York, 1905), pp. 244-45.
[9] *General Theory of Value* (New York, 1926), chaps. i, xii.
[10] *An Analysis of Knowledge and Valuation* (La Salle, Illinois, 1946), p. 3; chaps. 12, 16. [11] *Passim.*

noncognitive functions of value judgments, he has read them with inexcusable carelessness.

But the empiricist, perhaps because he thinks the noncognitive functions are rather obvious, does usually give most of his attention to the cognitive elements, and thus does not offer a very precise and detailed account of the noncognitive, nor of their relation to the cognitive; here is a point at which the empiricist is rightly challenged to develop his position. When the empiricist, furthermore, offers *definitions* of normative terms he formulates them with reference to descriptive properties alone. But this is because of the empiricist's conception of the function of a definition, which for his usual purposes does not need to state the full meaning of a term. We are, then, brought to the question of the Identifying Property and its role in definitions.

## III

The Matrix Meaning, if we take it as expressing the full meaning, is empty and blind. It tells us to go, but not where to go. So the cognitive element is equally indispensable. This consists of asserting that the object has the Identifying Property and the Conferring Properties. Need we get all these into a definition? Certainly not the Conferring Properties: the properties that under various circumstances make a thing good or right. They are indefinitely numerous, and are linked in empirical statements with the Identifying Property: If x has a certain Conferring Property under certain circumstances, specified or unspecified, then it has the Identifying Property (and therefore is fitted to perform the function assigned by the Matrix Meaning). The *general* meaning of the term, then, we may take to consist in the Matrix Meaning plus the Identifying Property—if we can find one.

Must the Matrix Meaning be included in the definition of the term? For certain purposes yes, for other purposes no. When we are engaging in ethical theory, we must seek full analyses and, if possible, definitions of the Matrix Meanings of the various normative concepts—e.g., of the "ought" as an unconditional prescription; of the "intrinsically good" as the conditional prescription of an experience in so far as it is considered without regard to its consequences.

The general practice of empirical theories, however, is to mention the Identifying Property alone explicitly in the definition, though the Matrix Meaning may be *assumed*. The "intrinsically good" is thus defined as the enjoyed or the enjoyable, etc., and the Matrix Meaning stated above is taken as understood.

Whether we define the term by means of its Matrix Meaning alone, or its Identifying Property, or both, depends on the *purpose* the definition is to serve. We encounter a similar situation in logic and the empirical sciences, where the definition is usually stated in terms of the Identifying Property alone, yet noncognitive functions may be assumed.

Let us consider, for example, the definition of "p materially implies q" as "either p is false or q is true." This certainly does not give the full meaning even of material implication. The definiens states the Identifying Property, or an Identifying Property, of implication, and thus gives the necessary and sufficient conditions of the term's use. But material implication also has a Matrix Meaning, embodying the function or noncognitive sense of the term. This meaning may be expressed as: "Whenever p is true, assert q"; or, if we take the meaning as doubly conditional: "If p is true, the assertion of q is permitted" (i.e., is prescribed provided you are interested in the truth value of q). The function of "implication" in reasoning is not given by the disjunctive relation stated in the definition; the function is that of prescribing, or permitting, us to infer q from p. Roughly speaking, a Matrix Meaning lies along the pragmatical dimension, and the Identifying Property along the semantical; though the matter may be more complicated than this. The semantical dimension comes to the fore when we are concerned to find the properties that permit us to apply the term; hence the utility of stating the definition as a semantical rule. Likewise, a chemical element is usually defined in terms of such properties as atomic weight or sub-atomic structure, though we also need operational rules, or what Peirce called pragmatic definitions, which prescribe methods of obtaining samples of the thing in question. Such technological rules always prescribe conditionally; since ethics takes precedence over technology, only the Matrix Meaning of the moral "ought" is an unconditional prescription.

Whether the Matrix Meaning is stated in the definition or not,

it is obvious that a working ethical theory must somehow *link* the Matrix Meaning with an Identifying Property. The linkage, on any theory that recognizes these factors, would be of the following sort: When and only when x has the ought-identifying property (e.g., the maximum happiness of all concerned), then x has the Matrix Meaning, that is, x is unconditionally prescribed.

How is such a linkage accomplished? The Identifying Property can no more be deduced from the Matrix Meaning than the Conferring Properties can be deduced from the Identifying Property. But whereas the linkages of the Conferring Properties with the Identifying Property are established by ordinary empirical methods —since they are causal or dispositional statements—the linkage between the Matrix Meaning and the Identifying property is at the logical level of a "principle" and not of an ordinary empirical generalization. Seeing that such is the case, an intuitionist who had gone so far with us would try to establish a synthetic a priori connection between the Matrix Meaning and the Identifying Property, just as he does between the "good" and the "good-making properties," and the "ought" and the "ought-implying."

As usual, the intuitionist has got something, though he has it out of focus. When the intuitionist thinks he has an intuition, I have suggested, he often has a working or prediscursive grasp of some factor that is present in the situation but so far has eluded analysis. We may, if we like, call such an operative grasp of meaning a kind of empirical intuition. But an empiricist must try to push the analysis further. The problem of justification of principles is the most difficult issue in ethics as in logic or metaphysics, and I cannot hope to treat it adequately here; at most I can point to some directions which the attempt at justification might take. It is hard to accept the view that such a principle as that which links the Matrix Meaning with the Identifying Property is a mere postulate, like a definition or a primitive proposition in a "wild" geometry, which stipulates the meaning of a term altogether arbitrarily. An empiricist has to seek the justification of the principle somewhere in the motivational make-up of man—as in some sense established by man's nature—yet to skirt the naturalistic fallacy.

It is dangerous to try to justify the principle in question by a simple deduction from the imperfectly understood laws of motiva-

tion and learning proposed by the psychologist. Yet we cannot disregard such laws. So far as the *de facto* usage of normative terms is concerned, they express habits of valuation, and the linguistic habits involved therein, which have been operating in us long before we formulate them discursively or seek to justify them by logical reasoning. Long before we make articulated value judgments, and still longer before we construct an ethical theory, the organism has exhibited at least a rough tendency for the experience of pain or frustration to prescribe an avoidance reaction, and for the experience of satisfied desire to prescribe the further seeking of objects like that which has afforded the satisfaction. Our operative understanding of "good" and "bad" thus expresses the spontaneous normativeness of the organism in contact with its world, complicated by our capacity to guide ourselves by symbols long before we can analyze or justify the use of these symbols.

The terms and meanings of a developed ethical theory take their departure from *de facto* usage and from existing habits of valuation but do not restrict themselves to these. Prescriptiveness here comes in at a new level. An ethical theory prescribes a more exact and more adequate use of language, and a more thoroughgoing scrutiny of the situation, than the ordinary practice of valuation has attained. The empiricist's appeal to the human make-up must include the developed and still developing practice of valuation and not merely the primitive practice of it; and the testing of principles must include consideration of their capacity to express the general ends of living, and to guide us in our involvement with them, as they are forced upon us by our growing moral experience. The principles in question are not only linguistic rules, prescribing our use of words, but also rules of practical reason, prescribing the forms of our reflection and the general characteristics of our action. The element of truth in apriorism, articulated confusedly by the intuitionists, is that the habits from which these moral principles spring are based in part on the congenital structure of the organism and are not simply empirical generalizations inferred from observation of the subject matter. In other words, man is no more a *tabula rasa* in the moral sphere than in his scientific enterprises. But his congenital structure is *logically* contingent and not, as traditional apriorism would have it, logically necessary.

It follows that we test or "justify" moral principles not merely by studying the human make-up, but by acting on the principles which express it. How such a justification can be carried out is beyond the scope of this essay; but a revised empiricism must stand or fall by its success in dealing with this problem.

In any case, we must not demand more from an ethical theory than the condition of man, which is below that of the angels, permits. We must not insist that an ethical theory in order to be acceptable must prove to us by strict reasoning that we ought to do our duty. We can with some plausibility show genetically how man came to have as much regard for others as he actually manifests; we can also show that a certain measure of such regard is necessary if men are to achieve certain shared ends. But after some stage of our discussion, we cannot offer any syllogism that will convince an obstinate egoist that he ought to share in the pursuit of these ends if they fail to gear in with his motivation. At this point our only recourse, such as it is, is either coercion or an imaginative evocation of his affections. But if empiricism has not met the test frequently offered as crucial—that of ability to prove to Hitler by purely rational means that he ought to behave—neither has any other theory.

The principles of logic itself, however, are in a similar plight. Such justification as is possible of the principles of deduction and induction cannot be effected by strict deductive or inductive inference, but only pragmatically by enlisting such general ends of life as the need for consistency in our action and for reliability in our prediction.

## IV

What, then, about the question: Can a normative statement be inferred from nonnormative premises alone?

If our analysis so far is correct, the answer is an unqualified no. The logical structure of a normative inference, in the simplest case, is as follows. Our basic assumption or premise is that "good" or "ought" has a certain Identifying Property, by means of which it is defined. A material equivalence, but not an identity, is thus set up between the total meaning (which also includes the Matrix Meaning) and the Identifying Property. We then discover or infer em-

pirically that something has the Identifying Property. It follows deductively that the thing in question is good. The deduction here is not elaborate: it amounts merely to the inference that because something has a certain property, it satisfies the criterion for the application of a term. Consequently no fallacy, naturalistic or otherwise, has been committed. The normative element is included in the criterion or principle, which, if we state the argument formally, serves as the major premise when we make explicit the assumptions of our reasoning; so that the normative element in the conclusion is derived from the normative premise.

Where Conferring Properties are involved, the argument is complicated by auxiliary reasoning of the following type: If x has a specified Conferring Property under such and such conditions, then x has the Identifying Property. This object or act has the Conferring Property under the required circumstances; hence it has also the Identifying Property. From this argument, together with the previous one, it follows that the normative predicate can be asserted of the thing in question.

Such analysis makes clear that *if* we can formulate and justify the definition, that is to say, *if* we can link the Matrix Meaning with an Identifying Property for each univocal sense of a normative term, then we need nothing but the ordinary forms of deductive and inductive inference in ethical reasoning.

But the emotivists, some of the younger analysts and some of the intuitionists would deny that we can achieve such definitions. For Stevenson, there is no genuine Identifying Property for a normative concept, and the links between the Matrix Meaning (emotive) and the miscellaneous Conferring Properties stated in "persuasive definitions" are, it appears, the result of haphazard conditioning, whose laws are never stated, so that anything goes.[12] According to Hampshire, the search for definitions has been the will-o-the-wisp of ethical theories, and instead of pursuing it we should limit ourselves to describing specimens of conduct to which ethical terms are correctly applied in ordinary usage[13]—that is to say, we should restrict ourselves to pointing out the various Con-

[12] *Ethics and Language*, chap. ix.
[13] *Op. cit.*, pp. 480-81.

ferring Properties. We are, in effect, urged to go back to Cephalus: Justice is to speak the truth and pay your debts.

But the members of these schools are not always able to adhere to such precepts. Thus Toulmin—who alone of the younger analysts has given us a book-length treatise on ethics[14]—equates *the* meaning of "right" with its Matrix Meaning, which for him is gerundive. Yet when we go on to *analyze* the term, Toulmin says that we give reasons for its application, and the admissible reasons either show that the act accords with the accepted customs and rules of a society, or, when these are disputed, with what amounts to an impoverished version of the Utilitarian principle. The Utilitarian principle thus serves for Toulmin in practice, as Broad has shown in his recent review,[15] as the statement of what I have called the Identifying Property. It is curious, and I think arbitrary, that Toulmin should exclude the chief concept in the "analysis" of the term from its "meaning." For what does analysis analyze if not the meaning?

Likewise with Stevenson. Although he gives us no general theory of how attitudes are formed and modified, in one passage he tells us that an attitude can be altered when the new situation pointed to by the cognitive element "will satisfy a preponderance of the hearer's desires."[16] If Stevenson had pursued this matter further, it looks as though he would have had to consider seriously the possibility that satisfaction of desire can serve as the Identifying Property of "good"; and thus he would land in a version of an empirical theory. But he does not follow up the statement I have just quoted.

The opposition of the younger analysts to definitions springs in part from two considerations. First, these philosophers dogmatically limit analysis to the explication of ordinary usage; and here the ambiguities of a term are more salient than any basic or central descriptive meaning that may be assigned to it. But empiricists have been proceeding on the assumption that *creative* thinking in morals as elsewhere refuses to limit itself to ordinary usage, however much

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[14] *An Examination of the Place of Reason in Ethics*, p. 154. Since this essay was written, R. M. Hare's *The Language of Morals* (Oxford, 1952) has appeared.

[15] *Mind*, LXI (Jan., 1952).

[16] *Ibid.*, p. 27.

this should be respected, and so empiricists feel free to propose modifications in the accepted meanings in such a way as to make moral thinking more exact and more effective. Such a process is happening all the time in the admittedly empirical disciplines such as the natural and social sciences. Because of the importance of factual reasons in normative reasoning—which the younger analysts themselves have been reaffirming—the empiricist will refuse to give up the search for Identifying Properties until they have clearly been shown to be unattainable.

Secondly, the younger analysts are understandably bewildered and disgusted by the conflicting array of definitions that ethical theorists have flung at them. They see that the man in the street and even the moral philosopher himself manages to make shrewd valuations, and usually to avoid total disaster in the business of living, without direct benefit of ethical theory, and that a moralist's definition may befuddle as much as it enlightens. The younger analysts, being good Englishmen, possibly have in mind such a field as the common law, whose "growing edge" serves with some rough success the purposes of social morality in coping with novel situations, and yet does not proceed by deduction from constitutional legislation of universal principles, but rather works by empirical intuition from clear-cut case to clear-cut case, at most restricting itself to such low-level generalization as that which consists in formulating analogies between cases. Yet we know that the common law itself tends toward some measure of codification (or, as the current term has it, "restatement") and, where conflicts and uncertainties are acute, to be replaced by statutes prescribing definitions from which deductions can be made. In ethics as in jurisprudence, it seems that a prudent policy would be: to keep on seeking definitions, but to hold them always in suspicion.

The repudiation of definitions has led to the view that a special form of logical inference, different from the deductive and the inductive, is employed when we pass from the reasons for the ethical judgment to the judgment itself. But until the anti-definists succeed in establishing such a "deontic" logic, we can suggest that the inference from the accepted clear-cut case to an analogous case is simply a short-circuiting of ordinary deductive-inductive inference, whose structure would be made clear if we stated the

working assumptions involved; in other words, if we formulated the semantical habit as a semantical rule. The peculiar logical and methodological problem then would be seen to consist in the justification of the rule or principle, not in the discovery of new forms of inference.

## V

Finally, the question: Are normative judgments cognitive statements or something else?

What has preceded indicates that for a revised empiricism the answer would be along either of these lines: (1) A normative judgment is a cognitive statement with a prescriptive function; or, (2) A normative judgment is a prescriptive expression whose meaning includes a cognitive assertion resting on empirical evidence. It is unimportant which way we put it, provided that we include both elements.

As a postscript, I should like to make it clear that I do not conceive this paper to have given an adequate defense of ethical empiricism, much less to have justified any special version of an empirical theory, such as hedonism or an interest theory. I have tried only to indicate the form in which a revised empiricism may be restated in order to assimilate the very keen analyses made by its recent critics, particularly with respect to the noncognitive factors in normative expressions. I do not even insist that the kind of theory I have indicated be called an empirical or naturalistic theory, though it is closer to these than to the alternative positions. Empiricism will at least have to modify the statement of its position; and in philosophy when you modify the statement you modify the position.

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# FREGE'S THEORY OF FUNCTIONS AND OBJECTS[1]

## I

THE PURPOSE of this paper is to discuss Frege's distinction between functions (in particular, concepts and relations) and objects. Besides being of historical interest, a discussion of this type will, I think, illuminate several well-known philosophical views, such as: (1) There are some things which can exist alone or apart and others which cannot; (2) There exist logically complete wholes or unities, some of the parts of which, being essentially adhesive in character, link the other parts together; and (3) Relations are internal.

Since Frege's distinction seems not to be widely known, I shall compare it briefly to the familiar distinctions, universal-particular and substance-attribute, to which it is related.

Classes, traditionally, have been considered as universals, but under Frege's classification they are objects. Furthermore, Frege classifies as functions certain things—e.g., the meaning[2] of "the capital of," occurring in the expression "the capital of Germany"—which have not traditionally been classified as universals, nor, for that matter, classified at all.

According to some versions of the substance-attribute view, an attribute or property is part of any substance possessing the property. Frege, in contrast, asserts that a property, which for him is a special kind of function, is not part of the object possessing it, but instead, forms together with the object a "complete whole," having as constituents the object and property.[3]

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[1] I am very much indebted to Professor Max Black for many of the ideas expressed in this paper. It should not, of course, be assumed that he would agree with the whole or any part of what I say here.

[2] The German word is *Bedeutung*. In contexts like the one above, this word does not, I think, have the technical meaning of denotation or reference, given it in the essay *Ueber Sinn und Bedeutung*. For one thing, *Bedeutung* is not here opposed to *Sinn* (sense), because function-expressions do not have a sense. Secondly, it appears that only proper names, i.e., names of objects, have a denotation in the technical use of the word.

[3] Cf. *Function und Begriff* (Jena, 1891), p. 6.

Thus "function" is a more general term than "attribute." Furthermore, a function, even when a property, does not bear the same relation to an object possessing it as an attribute supposedly bears to a substance. Functions, however, cannot exist apart,[4] Frege holds, and in this respect they resemble attributes; while objects, like substances, are independent or self-sufficient.

As I indicated above, concepts (or properties)[5] and relations are special kinds of functions. A concept, roughly, is the meaning of a grammatical predicate.[6] In the sentence "Bismark is dead," the expression "is dead,"[7] occurring as part, designates[8] a concept.[9] If a sentence contains two proper names or more, the part of the sentence lying outside any two of the names designates a relation.[10] The expression "is north of," for example, occurring in "Canada is north of Mexico," designates a relation.

Frege has no special name for functions which are neither concepts nor relations. One such function, the meaning of "the capital of" in "the capital of Germany," has been given already. The meaning of "$+3$," occurring in the numerical expression "$2+3$," is another instance of a function of this type.

In the examples above, an expression designating a function was used in conjunction with proper names to form sentences, descriptions, and complex numerical expressions. Frequently, however, Frege wishes to designate functions "in isolation,"[11] and to do so, uses free variables, considered by him as analogous to brackets. Thus to speak in isolation of the function designated by the predi-

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[4] Cf. "Ueber die Grundlagen der Geometrie," *Jahresbericht der deutschen Mathematiker-Vereinigung,* XII (1903), p. 372, footnote.

[5] To be accurate, a property is a special kind of concept, but as the distinction is unimportant for my purpose, I shall not elaborate it.

[6] Cf. "Ueber Begriff und Gegenstand," *Vierteljahrsschrift für wissenschaftliche Philosophie,* XVI (1892), p. 198.

[7] Sometimes the copula is ignored.

[8] The usual German word is *bezeichnet,* although *bedeutet* is also used.

[9] That is, a concept of the first level. Frege has a hierarchy of concepts (indeed of all functions), resembling a simple theory of types for functions.

[10] By a relation, Frege always understands a two-termed relation. However, I shall frequently use the term to refer to relations having any number of terms.

[11] Cf. "Was ist eine Function?," *Festschrift Ludwig Boltzmann gewidmet zum sechzigsten Geburtstage 20. Februar 1904* (Leipzig, 1904), p. 664.

cate of "Bismark is dead," Frege would usually replace "Bismark" by a letter, e.g., "x," acquiring "x is dead." In Frege's technical terminology, "Bismark" designates an argument to the function, while "Bismark is dead" designates the value of the function for the argument Bismark. The value of a function is always an object, but an argument to a function may, depending on the kind of function, be either an object or a function.

The distinction between designating a function in isolation and designating it by means of an expression occurring as part of a larger expression, which stands for the value of the function, has been mentioned because it is closely related to several of the issues I wish to discuss—for example, whether functions can exist apart from objects or not.

I have given a provisional explanation of the term "function" by indicating the kinds of expressions which stand for functions. Following an analogous procedure for "object," an object is anything designated by a proper name (in the ordinary sense), numeral, definite description, or true or false sentence.[12] Thus the author of Waverley is an object. Frege would describe this object, Scott, as a "complete whole" made up of two logical parts, Waverley and the function designated by "the author of." If an object is made up of logical parts, in Frege's sense, I shall call it a complex object. Otherwise it will be called a simple object.[13] A complex object, therefore, is an object which is a value of some function; a simple object is an object which is a value of no function.

Having given a provisional account of the difference between functions and objects, I wish now to present the distinction in detail.

(1) Functions are described as "unsaturated," "in need of supplementation," "incomplete" (*ungesättigt, ergänzungsbedürftig, unvollständig*); objects, in contrast, as "saturated," "supplemented," "complete wholes" (*gesättigt, ergänzt, vollständige Ganzen*).[14]

[12] Frege holds that sentences refer to truth-values, the true and the false. Cf. "Ueber Sinn und Bedeutung," *Zeitschrift für Philosophie und philosophische Kritik*, n.s. C (1892), pp. 34-35.

[13] Simple objects are never explicitly discussed by Frege.

[14] Cf. "Was ist eine Function?," p. 664; *Function und Begriff*, p. 6; "Ueber die Grundlagen der Geometrie," pp. 371-374; *Grundgesetze der Arithmetik* (Jena, 1893), Vol. I, pp. 5-7.

(2) Functions are logical bonds (*Bindemittel*), without which the parts of complex objects could not adhere. Objects lack this peculiar adhesive property.[15]

(3) Functions, unlike objects, "can occur only in combination." They can be "distinguished within" objects but not "separated from" objects.[16]

(4) No function can be a logical subject, a place reserved for objects alone, and no object can be a logical predicate.[17] It follows from this, as I shall show later, that a function cannot be designated "in isolation," a point on which Frege wavers somewhat.

These four characterizations of functions and objects are by no means distinct and independent. The second and third are really elaborations of the first, and both are related to the fourth in a somewhat intricate manner.

## II

The terms "complete" and "incomplete" and their cognates, by means of which Frege distinguishes functions from objects and indicates the "essential nature" of each, are admittedly metaphorical. The difficulty is to find the ground of the metaphor. One might naturally think that a function, being incomplete, has a missing part, like a house with no roof or a book with a chapter still to be written. Nevertheless, a function has no missing part, and so in the ordinary sense is perfectly complete just as it is. The only thing that could qualify as a missing part is an argument to the function, but Frege says "the argument does not belong to the function, but rather forms together with the function a complete whole."[18]

The argument, Frege says, completes the function,[19] but what is here called completing the function is more appropriately described as converting the function into an object. If a function is completed, in Frege's sense, it becomes not a completed function—for that, like the round square, is a logical absurdity—but an object.

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[15] Cf. "Ueber Begriff und Gegenstand," p. 205; "Ueber die Grundlagen der Geometrie," p. 372.

[16] Cf. "Ueber die Grundlagen der Geometrie," p. 372, footnote.

[17] Cf. "Ueber Begriff und Gegenstand," p. 193, 195.

[18] *Function und Begriff*, p. 6.

[19] Cf. *Grundgesetze der Arithmetik*, Vol. I, p. 6.

Ordinary people complete a house and the result is a house. Frege completes a house and finds he has constructed the moon.

I have considered, so far, only the pair of terms "complete" and "incomplete," but Frege's use of the other pairs of metaphors, "saturated" and "unsaturated," etc., is similar. A function, it is said, is saturated by the argument. The result, however, of saturating a function is not a saturated function but an object. This is like saying a man saturates a sponge and then has the leviathan on his hands.

One might, then, say that a function is incomplete in the sense of being merely a part or fragment of a complex object. Perhaps we might call a function an incomplete object. But if so, objects, contrary to Frege's view, would also be incomplete, since objects too may be parts of complex objects. The object, England, for example, is part of the complex object, the capital of England, i.e., London.[20]

A clue, perhaps, to the interpretation of Frege's metaphors is the fact that a function is apparently conceived as something with a hole in it. We can, he says, indicate the unsaturated nature of functions by using brackets in function-signs, as in "$(\ ) + (\ )^2$" or "( ) is a man."[21] These expressions are called incomplete or unsaturated, and their incompleteness is said to correspond to an analogous property in what they stand for.[22] A function, therefore, seems to be a kind of logical frame or rack. This interpretation is reinforced by the following considerations. First, an argument to a function is not, according to Frege, part of the function; and it is also the case that whatever is placed in a frame or rack is not part of the rack. A gun, for example, standing in a rack, is not part of the rack. Secondly, racks, like functions, serve to hold things together.

It now appears that the terms "complete" and "incomplete" can-

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[20] Functions, too, may be made up of parts. The function, *x likes Bismark*, contains Bismark as part (cf. *Die Grundlagen der Arithmetik*, Oxford, 1950, p. 77). Since, however, functions are said to be timeless, it is difficult to see what sense can be given to "part" here; for Bismark, who changes, has a beginning and end, etc., is clearly not timeless. The part here seems to make no difference to the whole.

[21] Cf. "Was ist eine Function?," p. 664.

[22] *Ibid*, p. 665; "Ueber die Grundlagen der Geometrie," p. 371.

not be clarified except by means of "part" and "whole." By saying functions are incomplete, Frege seems to mean they are those parts of "complete wholes" which, being perforated, bind the other parts together. Objects, being complete, lack this property to generate such wholes.

An explanation of this type is hardly satisfactory, however, because the terms "part" and "whole," among others, are, like the terms to be explained, also metaphors.[23] It is no doubt admissible to say that a whole is part of itself, but to say, as Frege is required to do, that a whole may be a part of one of its parts is to use "part" and "whole" somewhat mysteriously. The value of the function *not-x* for the argument not-P is, on Frege's view, the complete whole, not-not-P, i.e., P. Here P is part of not-P, which, in turn, is part of P. The value of the function, *the worst enemy of x,* for the argument denoted by "the state governed by Hitler," might be said to be Hitler himself. Yet the argument is "part" of the "whole" and the "whole" is "part" of the argument.

Ordinarily we have a complete whole whenever all the parts are present and together in the right form. An expression such as "the father of Adam," however, not standing for anything, does not stand for a complete whole. Nevertheless, the parts are all present and are presumably together in the right form, since the parts expressed by the similar expression, "the father of Bismark," are so united as to give a complete whole. Frege, it is true, says that when an expression lacks an ordinary reference, we may give it an arbitrary one, e.g., zero.[24] But then whether or not we have a complete whole does not depend upon whether the parts are present or absent. The discovery of the golden mountain would then be a complete whole, although here a part is surely missing.

Finally, Frege says that expressions like "is the same as b" or "x+b," or, more generally, those of the form "xFb," stand for functions that are completed by an argument *a*. But when *a* is the same as *b*, it is not easy to see how *a* can complete the function. The expressions xFb and aFb have precisely the same parts, provided *a* equals *b*. Nevertheless, Frege says that aFb is a complete

[23] Frege is aware of this. Cf. "Sinn und Bedeutung," pp. 35-36.
[24] Cf. "Sinn und Bedeutung," p. 41, footnote.

whole, while xFb is not, and this sounds as if one could construct a complete whole by doing nothing.

Thus the attempt to clarify "complete" and "incomplete," and also "function" and "object," by the use of "part" and "whole," owing to the obscurity of the last pair of terms, has been unsatisfactory.

One might, next, suppose that the figure of a function as something with a hole in it is not to be taken seriously, and that Frege, by his use of "complete" and "incomplete," primarily intended to point out that functions "can occur only in combinations," whereas objects are self-subsistent or independent. A function, he holds, is like a coat and "cannot stand upright by itself; in order to do that, it must be wrapped about somebody."[25] This, I suppose, is a way of saying that a function cannot exist by itself. If there is a function, there is also, necessarily, an argument to the function (and hence a value of the function).

The interpretation here suggested of "complete" and "incomplete," though perhaps plausible, is not, I think, an adequate one. First, it seems to ignore the adhesive character of functions, surely according to Frege, one of their most important properties, and therefore it does not present the whole meaning of "complete" and "incomplete." (There is, however, a close and peculiar relationship, which I shall point out below, between the insubstantial and the adhesive characteristics of functions.) Secondly, unless we use the notions of part and whole, we cannot distinguish functions from objects by saying that functions cannot exist alone but objects can.

Suppose we say: If there is a function $F$, then there is an object $a$ and either a function $G$ (distinct from $F$)[26] or an object $b$ ($b$ may be $a$), such that $a=F(G)$ or $a=F(b)$. This condition, which states that there is no function without an argument and value, guarantees that no function exists alone.

It is easy to show, however, that in this sense of "exists alone," no complex object can exist alone either. For, by definition, if $b$ is a complex object, there is a function $F$ and an argument $a$, such that $b=F(a)$.[27]

[25] "Die Verneinung," *Beiträge zur Philosophie des deutschen Idealismus*, I, (1919), p. 157.

[26] Frege's functions do not take themselves as arguments.

[27] Section 34 of *Grundgesetze der Arithmetik*, Vol. I, involving the occur-

The sense of "exists alone" which I have used is, I think, quite like the one we employ in saying there could be no husbands unless there were also wives; and it is pretty obvious that this is not the sort of use which Frege would have in mind. For one thing, husbands, being objects, are not incomplete.

Suppose, therefore, that we try to distinguish functions from objects by saying that an object could exist if nothing other than its parts existed, assuming it has parts, and that a function could not exist except as part of some object. Frege, it appears, would agree that this is one way of distinguishing functions from objects, for he says concepts, unlike objects, "can occur only in combination" and that, although they can be "distinguished within" a combination, they cannot be "separated from" it.[28]

Again, however, the distinction drawn is unsatisfactory, since there cannot be just one *simple* object. Let *a* be the object which is the only simple object. Then *a* is the value of the function, *the object which is x*, for the argument denoted by "the simple object." Consequently, *a*, being the value of some function, cannot be simple.[29]

The above argument depends upon the fact that Frege's functions are one-valued, and while the assumption that there is but one simple object implies that this object cannot be simple, the assumption that there are two or more simple objects does not have an analogous consequence. What I have shown is that if there is one simple object, there are at least two. Consequently, we cannot say, as I said above, that objects can exist even if nothing else exists (aside from their parts, if they have any). For a simple object cannot exist unless another object also exists, and of course this second object cannot be part of the simple object.

Apparently, then, Frege's view that objects are self-subsistent or independent means simply that objects can exist without being

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rence of function-variables in quantifiers, is worth noting in this connection.

[28] Cf. "Ueber die Grundlagen der Geometrie," p. 372, footnote.

[29] Roughly, a simple object is one that cannot be described (in Russell's sense). It is also doubtful if it can be referred to at all, given Frege's theory of names. He holds that every name has a sense, which is apparently a uniquely determining property of an object. But if a simple object had such a property, it could be described and so could not be simple.

parts of other objects or wholes; and the view that functions are not self-subsistent means simply that functions cannot exist without being part of some whole.

In this section I have tried to show that Frege seems to mean two things by describing objects as complete and functions as incomplete. First, functions, in contrast to objects, have a peculiar capacity to link together the parts of complete wholes. Secondly, functions, unlike objects, can exist only as parts of complete wholes. Neither of these explanations is satisfactory, because we do not understand "part" and "whole," as Frege uses them.

In the next section I shall consider Frege's reasons for distinguishing functions and objects. He holds that the distinction must be made, but that since it is so very fundamental, he can only give hints as to what he means by it.[30] Perhaps if we can see the reasons why the distinction must be made, then the distinction itself will become intuitively clear.

## III

Frege, after describing an object as complete and a concept as incomplete, remarks:

> I am well aware that expressions like "complete" and "incomplete" are metaphorical . . . . Nevertheless, it can, perhaps, be explained why the two parts must be distinct. [The two parts here referred to are the logical subject and logical predicate, i.e., concept.] An object—e.g. the number 2—cannot logically adhere to another object—e.g. Julius Caesar—without a link, which, however, cannot be an object but must be incomplete. A logical combination which gives rise to a whole can take place only when an incomplete part is completed or saturated by one or several parts. We have something similar when we complete "the capital of" by means of "Germany" or "Sweden"; or when we complete "the half of" by means of "6".[31]

Frege, in the passage above, says that objects will not cling together without a link. What he means can be illustrated by considering the meaning of certain types of complex expressions. The expression "Bismark hates Napoleon" or "2 + 3" contains parts which

[30] Cf. *Ueber die Grundlagen der Geometrie*, pp. 371-372; "Ueber Begriff und Gegenstand," pp. 204-205.

[31] "Ueber die Grundlagen der Geometrie," p. 372; cf. also "Ueber Begriff und Gegenstand," p. 205.

stand for objects, and yet the meaning of the whole expression has a unity which an expression like "Bismark, Frederick, Napoleon" lacks. An expression of the latter type, though it might be used in making an enumeration or in calling a roll, does not, as a whole, stand for anything at all. Frege tries to account for the unity associated with "Bismark hates Napoleon" by saying that "hates," the sign for a relation, refers to a logical bond that links Napoleon and Bismark together. In the case of "Bismark, Frederick, Napoleon," such a bond is missing, so that we do not have a complete whole.

Let signs like "Bismark hates Napoleon" and "$2+3$" be called logically complex signs.[32] Then a logically complex sign will be a sign that (1) contains parts which stand for things and (2) stands, as a whole, for one thing only.

An expression for the value of a function is a logically complex sign. If $F(a)$ is such an expression, $F$ is a sign for the function, $a$ for the argument, and $F(a)$ for the complete whole made up of the function and argument. Such a sign might be compared, not only to signs used in enumerating, but also to grammatically but not logically complex signs like "Pringle-Pattison" or "New York." Frege would say that "with respect to the contents" of the latter signs, "there is no combination at all."[33]

Now a peculiarity of the meaning of a logically complex sign is that, although it contains parts, the parts cannot be enumerated or listed, a point of some importance for understanding the view that functions must always be parts of wholes. The meaning of "Bismark is different from Napoleon" cannot be analyzed into the parts: Bismark, the relation of being different from, and Napoleon; for, according to Frege, the relation of being different from is no relation.[34]

One reason offered for this conclusion, that the relation of being different from is no relation, is that the expressions "Bismark," "the

[32] Cf. *Grundgesetze der Arithmetik* (Jena, 1903), Vol. II, p. 255.

[33] *Ibid.*

[34] Cf. *Grundgesetze der Arithmetik*, Vol. I, p. 8, footnote; "Ueber Begriff und Gegenstand," pp. 195-198. Frege holds, in general, that the function $F(x)$ is no function. This sounds like a contradiction, but is really, I think, more like a kind of mild pun. It is like saying, with reference to the *Chicago Tribune*, that the world's greatest newspaper is not the world's greatest newspaper.

relation of being different from," and "Napoleon" can be seen to "hold themselves aloof from each other," so that "however we combine them, we get no sentence."[35] I doubt, however, whether Frege attaches much importance to this argument, since he holds, as a general rule, that linguistic considerations "are unreliable on logical questions."[36] Offhand, the argument seems rather weak. It may plausibly be said that "is different from," occurring in "Bismark is different from Napoleon," and "the relation of being different from" each stand for the same relation, and that although "the relation of being different from" will not combine with "Bismark" and "Napoleon" to form a sentence, this fact is the result of a linguistic accident.[37] Indeed, one might "analyze" the meaning of "Bismark is different from Napoleon" by writing "Bismark, is different from, Napoleon." Surely the parts would then combine to form sentences.

In that case, however, I am sure Frege would say that the expression "is different from" is ambiguous. When occurring in the sentence "Bismark is different from Napoleon," it designates a relation, but when occurring in "Bismark, is different from, Napoleon," it designates an object. The reason is that a relation cannot exist apart, and therefore cannot be designated in isolation.[38] The main reason why Frege holds that relations cannot exist apart is, I think, the extreme difficulty, given his view that logically complex signs stand for complete wholes, of distinguishing the meaning of "Bismark is different from Napoleon" from that of "Bismark, the relation of being different from, Napoleon."

[35] "Ueber Begriff und Gegenstand," p. 205.

[36] "Die Verneinung," p. 150.

[37] Cf., in this connection, Russell, *Principles of Mathematics*, 2d ed. (London, 1937), pp. 45-46.

[38] Frege's views as to whether or not a function can be designated "in isolation"—i.e., by an expression which is not part of an expression for a value of the function—do not seem consistent. (Cf., for example, "Was ist eine Function?," p. 664, footnote, and "Ueber die Grundlagen der Geometrie," p. 372, footnote.) He does consistently hold, however, that only an object can be a logical subject. Assume, then, that an expression "F(x)," occurring in isolation, designates a function. It seems an obvious principle that if an expression designates something in a given manner, then what is designated is designated in the given manner. Hence F(x) would be a function designated in isolation. But this is false, because F(x), being a logical subject, is no function. Consequently a function cannot be designated in isolation.

If we "analyze" the meaning[39] of "Bismark is different from Napoleon"—i.e., if we enumerate its parts—the result, of course, is Bismark, the relation of difference, Napoleon; all the parts, it appears, but no unity. Yet if the meaning of "Bismark is different from Napoleon" and that of "Bismark, the relation of difference, Napoleon" contain the same parts, they would, it seems, be the same. The difference between the two arises, Frege holds, because the relation of difference is no relation. It is not indentured and cannot hold the parts together. Frege's logical chains, by being disconnected from objects, lose their essence.

Russell once tried to account for the kind of difference seen in "Bismark is different from Napoleon" and "Bismark, the relation of difference, Napoleon" by saying that in the first case the relation actually relates, thereby generating a unity, and in the other case it does not.[40] Obviously this will not do in general. The relation expressed in the false sentence "Aachen is larger than Berlin" does not, in any ordinary sense, relate the terms, since the relation does not hold between the terms. Nevertheless, the meaning of "Aachen is larger than Berlin" is as much a unity as that of "Aachen is smaller than Berlin," a sentence expressing a relation which does relate the terms.

One might, however, appeal to a physical analogy and elaborate Russell's view by saying that the difference between a logical unity and the collection of its parts is that in the first case a certain relationship holds between the parts. A house and a pile of bricks may contain the same parts, but they are different because the parts are arranged differently. This type of solution is not open to Frege (nor to Russell either), however, because the relationship between the parts of a logical whole or unity is itself a part. Consequently, if *Bismark is different from Napoleon* and Bismark, the relation of difference, Napoleon contain the same parts, the difference between them cannot be a result of a relationship between the parts. Frege, therefore, is required to say that they do not contain the same parts, and so says that the relation of difference is no relation.

[39] For the present discussion, it makes no difference in principle whether a sentence is taken as referring to a truth-value, a proposition, a fact, or a judgment.

[40] Cf. *Principles of Mathematics*, pp. 49-50.

An alternative, perhaps, to the paradoxical view that the relation *R* is no relation is the view that the meaning of "Bismark is different from Napoleon" contains an unexpressed relation, absent in the case of "Bismark, the relation of difference, Napoleon." Aside, however, from the difficulty of saying what this unexpressed relation might be,[41] other difficulties, of the sort pointed out by Bradley, stand in the way of such a view.

If the relation of difference is a relation and yet does not, as in "Bismark, the relation of difference, Napoleon," give rise to a logical unity, it is difficult to see how we could ever have such a unity, no matter how many relations are added to the collection. If the relation of difference requires to be connected to the parts, so does any additional relation, and the parts will always "hold themselves aloof from each other."

Consider this analogy. There is a bundle of sticks tied up by a piece of string. Someone dissolves the bundle by cutting the string, so that we have sticks and a piece of string, all in a pile. Suppose a man asks: "Why do we not have a bundle? The thing that holds sticks together, the string, is present in the pile." If the man believes that any relation which the string might bear to the sticks is itself, like the string and the sticks, a part of the collection, then it is futile to reply that the string is not tied round the sticks. He will no doubt say: "Being tied round the sticks is either a string or a stick. If it is a stick, it obviously will not make the pile a bundle, and if it is a string, the same is true. If the first string will not give us a bundle, throwing other strings on the pile will be futile."

The result is an infinite regress but no bundle. Frege avoids this by saying that if the string is not tied round the sticks, it is not really a string, thereby adopting the paradoxical view that the relation *R* is no relation. The alternative, however, is apparently the view that logical unities are not possible.

Bradley thought the view that all relations are external is incompatible with the existence of logical unities.[42] An external relation is opposed to an internal one, and by an internal relation, Bradley means one which "essentially penetrates the being of its

[41] Cf., in this connection, Russell, *op. cit.*, p. 51.

[42] Cf. Bradley, "On Appearance, Error, and Contradiction," *Mind*, n.s. XIX (1910), p. 179.

terms."[43] It seems to connect the terms in an organic sense, by growing into them, somewhat as the neck connects the head and body of a man. No part of a whole so connected can be torn away without destruction.

An external relation is one which is not part of its terms, as in Frege's conception, and Bradley does not see how such relations can give rise to complete wholes. If it does not form part of the terms, it can, without destruction, be taken from the whole, as in "analysis," and the above sort of infinite regress seems to arise.[44] Frege, of course, like Bradley, refuses to let a whole be "analyzed," and as a consequence Bradley's organic imagery seems more appropriate here than Frege's jigsaw picture.

Bradley also thought that any relation is really an appearance, the reason being that we cannot explain how it ever connects anything together. We might say that $aRb$ is a unity or complete whole, the parts of which are linked together by $R$. But how is this possible? If $a$ and $b$ are to be linked by $R$, they require to be linked to $R$. Hence we need two more relations—and so on.[45] The parts of a logical unity will always rattle.

Frege seems to hold that $a$ and $b$ do not need to be linked to $R$ by other links, because $R$ is indentured. I doubt whether this image would satisfy Bradley. He would no doubt ask what keeps the terms in the slots—and so another infinite regress.

I wish to say that Bradley and Frege have erroneously assimilated logical parts and wholes to physical parts and wholes, and as a consequence, have asked questions about the former which apply only to the latter. Physical links, chains, racks, etc. no doubt belong to the wholes whose parts they hold together, but a relation between the parts of a whole is never itself a part of the whole. A mechanic who lists the parts of a car does not attach the blueprint. Frege's use of "part" and "whole" hardly resembles the ordinary use of the

[43] *Appearance and Reality* (Oxford, 1893), p. 392.

[44] Bradley says, "If relations are facts that exist *between* facts, then what comes *between* the relations and the other facts? The real truth is that the units on one side, and on the other side the relation existing between them, are nothing actual . . . . Relations exist only in and through a whole which cannot in the end be resolved into relations and terms" (*Principles of Logic*, 2d ed. [London, 1922], p. 96).

[45] Cf. *Appearance and Reality*, chap. iii.

terms more than it does the use of any two terms chosen at random. Hence the question as to what holds the parts of a logical whole together does not arise. There are no parts and there are no wholes.

It is now easy to see one reason why Frege should think that a relation is insubstantial. If a relation between the parts is itself a part of the whole, then of course a whole cannot be taken apart or "analyzed." The relation will always be missing.

The image of logical parts and wholes, though extremely misleading, arises quite naturally for anyone who, like Frege, is caught in the grip of the name-relation. If we take the grammatical subject as a name and the grammatical predicate as a name, it is natural to say that the two things referred to are united into a whole, which is named by the sentence. Once this view is adopted, Frege's distinction between logical subjects and predicates follows as a matter of course. We can easily feel the difference between a substantive and a predicate. If both are taken as names, this difference will be expressed by saying substantives and predicates stand for entirely different sorts of things. A collection of names does not have the sort of unity we associate with a sentence. Yet if a predicate is a name, how does "Bismark is a man" differ from a collection of names? One is almost compelled, in order to make the distinction, to say that the predicate stands for something which has to grasp on to the subject for support. It is like a coat, which will not stand upright by itself.

We can now, I think, see why Frege found a close relationship between the insubstantiality of functions and their incapacity of being designated in isolation and by grammatical subjects. The predicate of "Bismark is a man" is taken as a name of a concept. But to refer to this concept as a logical subject, we should ordinarily write "the concept *man*" or "manhood," an expression which cannot replace "is a man." No unity can be associated with "Bismark the concept *man*," a fact which Frege can explain only by saying that the concept *man* is not something incomplete and hence is no concept at all.

## IV

To completely dissolve the image of logical parts and wholes, it would be necessary to show in detail various important logical dif-

ferences between substantives and predicates, adjectives, verbs, and the other expressions which Frege calls function-names. I cannot do this here. However, I can indicate some of the differences. Indeed, Frege, in trying to establish his view that functions can never be objects, points out several such differences.

For Frege there is no difference in principle between calling a roll and making an assertion about something. In either case we simply utter a series of names. The difference between these two uses of language lies, according to Frege, in the things named. In the second case, we must refer to at least one function; in the other case, we talk only of objects. The difference, for example, between saying "Bismark is a man" and "Bismark, the concept *man*" is found in the difference between what is referred to.

Now to speak in this way implies that proper names and descriptions are very much more like predicates and adjectives than in fact they are. One characteristic of names (including here descriptions) seems to be this: If *a* and *b* are names, *a* can be interchanged with *b* in a sentence and the result is a sentence. Hence if "is a man" in "Bismark is a man" is a name, then "Bismark the concept *man*" ought to be a sentence. More generally, if *a* and *b* are names, *a* can be interchanged with *b* without resulting in a jumble of nonsense. Hence if "the author of," occurring in "the author of Waverley," is a name, then the result of replacing it by the descriptive phrase "the author of (x)" ought not be nonsense. Nevertheless, "the author of (x) Waverly" is a jumble of nonsense.[46]

Expressions for functions, Frege says, do not occur alone on either side of an identity sign.[47] Frege should conclude from this that the nature of functions is so peculiar that we cannot in principle state their identity conditions. I think it shows that in order to identify something, we must use a name, not a predicate, or adjective, or in general, a function-sign. We say both "That is Venus" and "That is a planet," but as Frege points out, there is a great difference between identifying something and saying it "falls under a concept."[48]

[46] Cf., in this connection, *Grundgesetze der Arithmetik*, Vol. I, p. 8, footnote; "Ueber Begriff und Gegenstand," pp. 200-202.

[47] "Was ist eine Function?," p. 663.

[48] "Ueber Begriff und Gegenstand," p. 194.

We should not say, as Frege does, that a predicate is a name, but a name of a peculiar sort of thing. Frege has taken a linguistic difference to be a rift in nature.

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# THE USE OF SIMPLICITY IN INDUCTION

## I. THE PROBLEM

THE CONCEPT of simplicity plays a central role in inductive inferences. Given any inductive problem in which there are several "equally good" hypotheses, the scientist will choose the simplest one. In spite of the fact that this much is generally admitted, the concept of simplicity remains highly controversial in the philosophy of science.

By the "rule of simplicity" we mean a rule instructing the scientist to choose the simplest of several acceptable hypotheses. (This rule will be left vague for the time being.) Justifications for such a rule come from two diametrically opposed camps. At one extreme we find the belief that the rule involves an assumption about the "simplicity of nature"; the other extreme justifies it by saying that it is only a matter of convenience, a laborsaving device. And whatever the philosopher's attitude may be to the justification of such a rule, you will almost always find the firm opinion that no precise definition can be given for the concept of simplicity.

It is the purpose of this paper, first of all, to make a contribution to the explication (precise definition) of the concept of simplicity; secondly, to state a rule of simplicity in terms of this explicatum, and thirdly, to show the *methodological* advantages of this rule. It will be shown that such rules have a purpose deeper than mere convenience, and this will be shown without any metaphysical assumptions about nature.

The paper will first give a general discussion, and then apply the results to some well-known examples. It is convenient, however, to illustrate all the general points in terms of two simple examples. These will be included in the main body of the paper, but in order to preserve the continuity of the main line of argument, remarks referring exclusively to the illustrations will be marked off by brackets.

Although a certain amount of mathematical knowledge is pre-

supposed in the examples, the main argument requires no such background.

## II. PRECISE FORMULATION

Let us begin with a precise description of the type of inductive problems here to be considered. The scientist is confronted with some definite problem in which he will perform a series of experiments, which will culminate in the acceptance of some theory. There are two distinct steps in the technique of theory-formation: first of all, the scientist must formulate alternate hypotheses (generally there will be an infinity of alternatives considered), and secondly, the selection of one definite hypothesis on the basis of the results of experiments. It is the latter step that will be considered here. The former step is just as important, and presumably much more difficult, but it will be ignored in this paper.

We start with a given set of alternative hypotheses, and a series of experiments designed to eliminate incorrect hypotheses. The problem can be stated as follows: given the result of the first $n$ experiments, which hypothesis shall we select?

There is some question as to the number of alternate hypotheses to be considered, and the number of experiments we should plan. Both of these will be taken to be denumerably infinite. In the case of hypotheses, in all interesting examples there will be an infinity of possible explanations (certainly in any case involving measurement), and, on the other hand, there is serious doubt whether a scientist ever *really* considers a nondenumerable infinity of possibilities. As to the experiments, we consider a series (endless in principle) of planned experiments, though, of course, at any one time we will have the results of but a finite number of them.

[The first example to be considered is the classical inductive problem of the *urn*. There is a sealed urn, with an unknown number of white and black balls in it. Through an opening you take out one ball at a time, note its color, replace it, and shake the urn thoroughly. After $n$ draws you must decide what fraction of the balls in the urn is white. Your experiments in this case consist of drawing balls, and the result of $n$ experiments is to tell you that $m$ of the $n$ drawn balls were white. Your possible hypotheses state that some fraction $r$ of the balls in the urn is white, where $r$ is any

rational number between 0 and 1. Of course, in practice one can estimate an upper-bound for the number of balls in the urn, but for the sake of the illustration we assume that no such upper-bound is available, hence any proper fraction is possible (including 0 and 1 if we allow the cases where there are no white balls, or no black balls). On the basis of the report that $m$ of $n$ balls were white, we must select some $r$.

The second example is one involving measurements. We have two independently measurable quantities $x$ and $y$, and we make a series of measurements (say for values of $x$ between 0 and 1), and try to find how $y$ varies as a function of $x$, e.g., one quantity may be temperature, the other pressure, for a gas of fixed volume. We will suppose that the scientist has selected *polynomials* with rational coefficients as his possible hypotheses. After $n$ measurements, each one giving us an observed value of $y$ for some preassigned value of $x$, we have to select some polynomial which is to describe the relation between the two quantities.]

It will be convenient to introduce a simple notation for a typical problem. Let us denote the hypotheses we must choose from by $h_i$, and the possible outcomes of $n$ experiments by $e^n_j$. Let $e^n$ be the actual outcome, and $h^n$ the selected hypothesis. (We need the superscript for $h$, because after 100 experiments we may decide to choose a hypothesis different from the one chosen after 10 experiments.)

[In the urn example the various $h_i$ differ only as to the number $r$, while $e^n_j$ reports that $j$ of $n$ balls were white. If actually $m$ of them turn out to be white, then $e^n$ will be $e^n_m$, and $h^n$ is determined by the choice of an $r$.

In the polynomial example the $h_i$ are polynomials with rational coefficients, such as $x$ or $\frac{1}{2} - \frac{1}{4}x + \frac{1}{3}x^2$. $e^n_j$ reports the result of measurement at $n$ points. Thus $e^3$ may tell us that at the points $x = \frac{1}{4}, \frac{1}{2}, \frac{3}{4}$ the values $y = \frac{1}{8}, \frac{1}{4}, \frac{3}{8}$ were observed. $h^3$ must then select some particular polynomial; in this case it would undoubtedly be $\frac{1}{2}x$.]

There are certain assumptions underlying this procedure, which we must make explicit.

Assumption 1. One (and, of course, only one) of the hypotheses is true.

Of course this assumption may be false; if the evidence indicates that the assumption is likely to be false, then the scientist looks for a new (or wider) set of hypotheses. But then the assumption will again serve as a working hypothesis for the new set of hypotheses. [In the urn example we are certain that one of our hypotheses is true.] We will use $h$ to denote the true hypothesis.

Secondly, we need some measure as to how well the hypothesis in question agrees with the result of the experiments. For this we introduce a measure of deviation. ($m(h_i, e_j^n)$ will be used to denote the measure.) The choice of this measure will be left, to a large degree, arbitrary to allow the scientist a maximum amount of freedom. But in many examples there is a well-accepted measure of deviation. [In the urn example this would be the absolute value of the difference between $m/n$ and the predicted $r$. In the polynomial case we have some choice, but we may take the average of the absolute differences between predicted values and observed values.]

Assumption 2. The deviation between a given hypothesis and the observed results tends to 0 if and only if the hypothesis is the true one.

This assumption concerns the question whether the experiments are (at least in principle) adequate for the elimination of all false hypotheses.[1]

We are now in a position to formulate the ordinary rule of induction.

Rule 1. Select a hypothesis which is as well in agreement with the observed values as possible.

This is to be interpreted in the sense that for a given $e^n$ we must select an $h^n$ giving us the smallest possible deviation, i.e., making $m(h^n, e^n)$ a minimum.

[For the case of the urn we get "Reichenbach's Rule" exactly.[2] The rule tells us to select the hypothesis with $r = m/n$, which is Reichenbach's posit. (In this case the deviation is 0.)

In the polynomial example we can again make the deviation 0, by selecting a polynomial going through the observed values (as-

[1] We will not take into consideration the additional difficulties introduced by the Indeterminacy Principle.

[2] Hans Reichenbach, *The Theory of Probability* (University of California Press, 1949), section 87.

suming that the measurements, as is usual, give us rational values). But here the choice is not uniquely determined—which will soon lead to trouble. Reichenbach does not even consider such problems, and we refrain from adding anything to the rule at this time.]

It is customary in such papers to base the adequacy of a rule entirely on the question of "convergence." Although this will not be our only criterion, we must consider convergence. For this we will need some measure of the difference between hypotheses. (Denote this measure by $d(h_i,h_i')$.)

For the sake of logical economy we could *define* a suitable $d$ in terms of $m$. We will do this in two steps. First of all we introduce

$$d^n(h_i,h_i') = \min_j [m(h_i,e_j^n) + m(h_i',e_j^n)]$$

and then let

$$d(h_i,h_i') = \lim_{n\to\infty} d^n(h_i,h_i').$$

We must then make a special assumption about this measure, though this assumption can be satisfied in all usual cases by a suitably chosen $m$-function.

Assumption 3. For any two hypotheses the limit in the definition of $d$ exists, and it is 0 only if the hypotheses are identical.

[In our two examples the method just described leads to the accepted measures of difference; the absolute difference in $r$'s for the urn hypotheses, and the area between the curves in the polynomial example. In the latter case this is true only if the values of $x$ are taken from "all over" the unit interval, but this is necessary if assumption 2 is to be satisfied.]

We are now supposed to be able to prove that the selected hypotheses converge to the true hypothesis, but this is not always so.

If we introduce $d$ by definition, as above, we can easily show where the difficulty arises. It is easy to prove that $\lim_{n\to\infty} d^n(h^n,h) = 0$,[3] but what we need for convergence is that $\lim_{n\to\infty} d(h^n,h) = 0$, which does not follow.

[In the urn example we do get convergence, and this is the example usually discussed in the literature. However, in the polynomial example we get into trouble because the rule does not determine $h^n$ uniquely. We can select any polynomial passing through

[3] By definition $d^n(h^n,h) \leq m(h^n,e^n) + m(h,e^n)$, which in turn is at most $2m(h,e^n)$ because of the way $h^n$ was selected. But this tends to 0 by assumption 2, hence $d(h^n,h)$ tends to 0.

the $n$ observed points. Suppose we systematically select a polynomial which oscillates greatly between the observed values, then we can easily get a series of $h^n$ which does not converge.]

What we need in addition to rule 1 is some assurance that the values of the hypothesis at points not observed "fit in well" with the observed values. The usual way of assuring this is to do what any scientist would do in the application of rule 1, namely to use the following rule:

Rule 2. Select a hypothesis which is as well in agreement with the observed values as possible; if there is any choice left, choose the simplest possible hypothesis.

[In the polynomial case this would direct us to choose the polynomial of lowest degree passing through the $n$ points, and then we get convergence.]

In most applications rule 2 will result in convergence, and this is the rule that is undoubtedly in the minds of most writers when they *prove* convergence. We could have introduced it immediately, in place of the first rule, but we wanted to emphasize the point that even in the traditional rule "simplicity" comes in from purely methodological considerations.

We must now deviate entirely from the traditional approach, and start a new line of attack.

## III. FINDING THE TRUE HYPOTHESIS

We have so far discussed only the question of how well the chosen hypothesis approximates the true hypothesis. We will now consider what our chances are of selecting the true hypothesis itself.

We find the strange result that in the usual examples, if we use rule 2, our chance of selecting the true hypothesis gets worse and worse! And we even find that the requirements we must put on the results of experiments in order to have the true hypothesis selected are very strange indeed.

[Let there be ⅓ white balls in our urn. In order for rule 2 to select the true hypothesis, we need that $m = \frac{1}{3}\, n$. This has the very strange consequence that a necessary condition for the selection of $h$ is that $n$ be divisible by 3. And even for these values of $n$ we find that while the probability of being within a preassigned per-

centage of the true value tends to 1, the probability of getting the true value itself tends to 0.

The situation in the polynomial case is even more counterintuitive. We can select the true hypothesis only if all $n$ measurements are exactly correct, the probability for which even for $n = 1$ is 0. In short, we see that while rule 2 is designed to get an $h^n$ near $h$, it is also so designed that it would take a miracle to give us $h$ itself.]

When we take these facts into account, we must realize that rule 2 somehow fails to reproduce what scientists actually do. This could also have been noted from a particular example. [If 503 out of 1000 drawn balls were white, it is most unlikely that the scientist would select the value $r = 503/1000$ instead of $r = \frac{1}{2}$.[4]]

And there is a third difficulty. While we can prove convergence, we have said nothing at all about how many experiments are needed to arrive at a hypothesis close enough (for practical purposes) to the true hypothesis. Indeed in many fairly simple cases we note that the number of experiments needed is quite large, often too large from a practical standpoint. So we arrive at the following three criticisms of rule 2:

(1) The probability of selecting the true hypothesis tends to 0 as we increase the number of experiments.

(2) If we need high accuracy ($h^n$ must be very close to $h$), we often have to make $n$ too large for practical purposes.

(3) Rule 2 does not reproduce what scientists actually do.

Let us start with the last point. We note that in the examples quoted, scientists would have chosen a hypothesis different from the one selected by rule 2, even if this hypothesis was not as close to the observed values. Of course, they do not allow very large deviations, but they allow some deviation—recognizing that the results of the experiments need not be exactly the true values. They allow themselves some margin of deviation; they agree as to when a hypothesis is compatible with the evidence, and then they select the simplest one from all such compatible hypotheses.

Rule 3. Select the simplest hypothesis compatible with the observed values. (If there are several, select any one of them.)

[4] This criticism was used by Bertrand Russell in *Human Knowledge* (Simon and Schuster, 1948), p. 370.

The difficulty with this rule is that it contains two very vague terms, "simplest" and "compatible." Our immediate task is to explicate these terms.

Let us begin with the term "compatible," because in this case we have a reasonably clear usage in science. The scientist says that a hypothesis is compatible with the result of observations if these results do not definitely eliminate the hypothesis from the realm of possibilities. As has often been pointed out, this does not, in general, mean that the observations contradict the hypothesis, but only that they make the hypothesis very improbable. More precisely, for a given hypothesis we can calculate the probability of getting observational results within preassigned deviations, and we select some level of deviation such that the outcome is almost certain to fall within it; if it does not, then we eliminate the hypothesis. What this level should be is to a great degree arbitrary. For the sake of this paper we select the simple fixed level at which 99 per cent of the observations will fall within the level.[5]

Definition 1. The hypothesis $h_i$ is *compatible* with the result $e^n$ if, assuming the truth of $h_i$, there was at least a one per cent chance of getting a deviation as great as $m(h_i,e^n)$.

[In the urn example, given an $h_i$, i.e., given an $r$, it is a simple probabilistic calculation to find the compatible and the incompatible results $e^n_j$. Assuming that $h_i$ is true, we can calculate the probabilities of each *possible* outcome of $n$ experiments, and then we allow an interval around $r$ just large enough so that the total probability of all outcomes in this interval is just 99 per cent. In the polynomial case we must invoke the theory of errors in measurement, which will tell you whether an observed deviation is within the one per cent level or not.]

So we see that under rule 3, for any $e^n$, there is a good deal of choice left—and we must select the simplest possible hypothesis. But which hypothesis is simplest? It is best to answer this question for examples first, and then try to give a general criterion.

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[5] Other levels of compatibility could be used as well. As a matter of fact it might be much better to use a criterion that tends to 100 per cent slowly as $n$ increases. This would give us an improvement on the theorem which we will prove later. But since this method leads to difficulties, we will take the simpler criterion for the sake of this paper.

[We have agreed to select ½ in preference to 503/1000, and we will readily agree that the selection of ⅓ is better than that of 331/1000. If we are not oversophisticated it should be pretty obvious that the simplicity in these cases lies in the fact that the simpler fractions can be expressed in terms of smaller numbers. Yet it would seem counterintuitive to select ⅓ over ⅔ because of greater simplicity. First of all, they occupy symmetric positions; secondly, ⅔ white balls is the same as ⅓ black balls; and finally, these two fractions would hardly ever be both compatible with the observations. So at least in the urn example we can safely state that simplicity consists in the smallness of the denominator of $r$. Of course it could be objected that the same fraction can be stated in an infinity of forms, but if we take advantage of this supposed difficulty, then we get a deeper insight into the simplicity ordering. Let us divide all fractions into classes, the $k$th class having all fractions with denominators $\leq 2^k$, $k = 0, 1, 2, \ldots$ Then there are few duplications within a given class, and each new class contains all the previous ones. ($⅓ = 2/6 = 3/9$, etc.) Thus we see that allowing greater complexity (less simplicity) coincides with allowing ourselves more freedom of description and greater accuracy.] Hence we note that rule 3 can also be stated as a warning: do not use more precision in your theories than is necessary to explain the observations. For example, in the case of a simple measurement,[6] the rule tells you to use no more digits in your summing up of results than is necessary to be within the experimental error. Hence we get the rule of significant digits!

[In the polynomial case the theory of errors allows us some deviation from the observed values, and we must fit a polynomial of lowest possible degree within this deviation, e.g., if there is a straight line compatible with the observations, we must choose it. (Of course scientists very often choose straight lines even when there is none compatible with the evidence.) So we see that simplicity in this case consists first of all in choosing the lowest exponent possible, and only if there is more than one polynomial of lowest degree com-

[6] The possible hypotheses in this case are all finite decimal expansions. We order them according to the number of decimal places. Each new class contains the previous ones, since we can always put o's at the end of the decimal expansions. Then, e.g., if we measure .1234 ± .005, we must select .12.

patible with the observations do we take the coefficients into account. We might do the latter by considering the largest denominator occurring in a coefficient.]

We have constructed rule 3 to bring our rules into better agreement with what scientists actually do. We are now in a position to ask: does this improved rule give us any better chance of selecting the true hypothesis? The answer turns out to be emphatically "yes."

There are two reasons why the hypothesis selected by rule 3 might not be the true one. The true hypothesis may not be compatible with the observations; or it might be compatible, but there could be a simpler hypothesis also compatible with the results. The former danger is very slight. According to definition 1 there is always a 99 per cent chance that $e^n$ is compatible with the true hypothesis, $h$. This was the reason why we chose a percentage as high as 99; we wanted to be almost certain that we do not eliminate the true hypothesis. But is not there a serious danger that simpler hypotheses will also be acceptable (especially since it is so difficult to eliminate hypotheses)? This is indeed the case, but in each example this happens only for a finite number of $n$; from a certain value of $n$ on it can never happen.

We must look into the reason for this. As we know from statistics, as $n$ increases, the deviations allowed by the compatibility requirement decrease. Hence for high $n$ we can find an interval around the observed values (an interval that can be made as small as required by increasing $n$) such that all compatible hypotheses lie within this interval. This, of course, is not enough; this only assures convergence under rule 3. But *the characteristic property of orderings according to simplicity* is that for any given hypothesis, even though there may be infinitely many hypotheses at least as simple, we can find an interval within which there is no other hypothesis as simple (or simpler). Hence, by making $n$ large enough we can make the interval of compatibility sufficiently small so that if the true hypothesis lies within it, no other hypothesis as simple will be in it. Hence for all sufficiently high $n$ we must select $h$ if it is compatible with the observations. Hence for all sufficiently high $n$ we are 99 per cent sure of selecting $h$. *This is the justification we offer for rule 3.*

[Let us suppose that ⅝ of the balls are white. There are only a

finite number of fractions at least as simple as 3/8, hence there is a closest one. It happens to be 2/5. $2/5 - 3/8 = 1/40$. From the theory of probability we can calculate an $n$ such that if we draw at least that many balls, then $r$ must be within $1/80$ of $m/n$ in order to be compatible. Then, if 3/8 is compatible, none of the others at least as simple are compatible with the observations. So from this point on if 3/8 is compatible with $e^n$, then it must be chosen. But (by the definition of compatibility) there is always a 99 per cent chance of that. Hence from this point on we are practically certain to select the true hypothesis.

The same result holds for the polynomials, but for different reasons. Given the true polynomial, it is not true that there is only a finite number of polynomials as simple or simpler; e.g., all polynomials of lower degree are simpler, and there are infinitely many of these in general. However, it is still true that there is a lower bound (greater than 0) for the differences between the true hypotheses and other polynomials at least as simple.[7] For sufficiently many measurements (the exact number determined by the theory of errors), we can narrow the interval of compatibility sufficiently that if the true hypothesis falls within it, none of the other polynomials which are at least as simple can be compatible with the observations. Hence, from this point on we are again 99 per cent sure of selecting the true hypothesis.]

Let us summarize these results in the form of a theorem.

Theorem: If the true hypothesis is one of the hypotheses under consideration, then—given enough experiments—we are 99 per sent sure of selecting it.[8]

The proof of this theorem was given in the main text above; all that was assumed was that the simplicity ordering has one fundamental property: for each hypothesis we can find an integer such that for $n$ at least as great as this we are assured that, if the hypothesis is compatible with the observations, no other hypothesis as simple is compatible.

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[7] The proof of this is not difficult in principle, but too long to be included in this paper.

[8] This result depends on the definition of compatibility (see footnote 5). E.g., had we selected the very common 95 per cent level, we would never be more than 95 per cent sure, but we would be that sure sooner.

We can now state precisely in what sense we propose to explicate the concept of simplicity. It will not be a unique definition, but for each inductive problem we will give a class of possible orders. This will be achieved by stating some necessary conditions for the ordering, the most important being that the order has the fundamental property just described.

But before stating the general definition, let us first see whether we have taken care of all three of the objections raised against the traditional rules. We started with the third objection, that the rules did not correspond to what scientists actually do. This was taken care of by inserting the "compatible with the observations" clause in place of "closest to the observed values," and by showing that the simplicity order corresponds to the order of going from less precision (less wealth of description) to greater precision. The former point is taken care of by the wording of rule 3, the latter by the first two conditions to be given.

Then we took up the first objection, that our chances of selecting the true hypothesis deteriorated. This is corrected by rule 3, as shown in the proven theorem. All we need for this is the fundamental property of the ordering, given in condition 3 below.

This still leaves one objection. Couldn't the "sufficiently large $n$" be too large for practical purposes? Actually, in many instances we can show that the $n$'s are quite low. [In the urn example, if ½ of the balls are white, we are 99 per cent sure of selecting the true ratio for $n \geqq 8$.] How high this $n$ is depends, of course, on how simple the true hypothesis is.[9] The best we can do is require that the ordering should make the required $n$'s as low as possible. This is not so easy, since one $n$ may be lowered at the cost of raising others. This is a question that deserves a good deal more research, but at

[9] This is the point at which an assumption about the "Simplicity of Nature" can come in. But it has to be a relation between the true laws and our ability of discovering them. It would have to take the form: The laws of nature are sufficiently simple that, following the best available inductive methods, man can in a reasonable period of time find them (or find a good approximation of them). Thus it expresses a relation between the $n$ assigned to the true law in our inductive method, and the number of experiments we can actually carry out during some era of science. This point will be developed elsewhere.

least the formulation here given to the problem should help in finding an answer. We will be content with the vague fourth condition below.

Definition 2. Given an inductive problem (as defined in this paper), we say that the hypotheses are *ordered according to simplicity* if we have the following four conditions satisfied:

Condition 1. The hypotheses are divided into sets $H_{(a,\ldots,z)}$, where $a,\ldots, z$ are natural numbers (called the *characteristic numbers*). These sets are ordered lexicographically according to the characteristic numbers. (The hypotheses in earlier sets being called simpler than the ones occurring only in later sets.)

Condition 2. The later sets include the earlier sets in the following sense: $H_{(a,\ldots,k,\ldots,z)}$ is always a subset of $H_{(a,\ldots,k+1,\ldots,z)}$.

Condition 3. For every set H there is an integer $N_H$ such that, if a member of H is compatible with $e^n$ for some $n \geq N_H$, then no member of H or of any earlier set can be compatible with this $e^n$.

Condition 4. $N_H$ should in each case be as low possible. (Or better, each $h_i$ should belong to a set H with an $N_H$ as low as possible.)

This completes the explication. We arrived at a characterization of orders according to simplicity. Although these conditions do not determine the order uniquely in any given problem, very often we find that there is but one natural way of satisfying the conditions. It is hoped that with the improvement of the fourth condition, and with the addition of new conditions, the explication of simplicity will be considerably advanced in the future.

It is most important to note, however, that the order defined is relative to an inductive problem! It is not true that the number ¼ need always be simpler than 1/10. [In the urn example it is, but in the case of a simple measurement[10] the former is written as .25, the latter as .1, and hence the latter is simpler.] It should be noted, however, that the same numbers express entirely different hypotheses in different problems. This point may have been one factor that led many people to believe that no definition of simplicity can be given.

[10] See footnote 6.

## IV. APPLICATIONS

So far we have only considered three extremely simple inductive problems: the urn and polynomial examples running through the text, and the simple measurement discussed in footnote 6. We are now ready to apply our method to some well-known historical problems.

Let us first take the problem of planetary motion in the time of Copernicus. Had Copernicus been familiar with the results of this paper, he could have argued as follows: the planets move in a plane closed curve around the sun. We must consider families of such curves, and order them according to their simplicity. We can in this follow the polynomial example: an $a$th order polynomial has $a+1$ parameters. The polynomials were ordered first according to the number of parameters (coefficients) and then according to the values of these parameters. We also had the inclusion theorem, a first order polynomial can be written as a second order one with a 0 coefficient. We must order our curves similarly, making sure that we count only the parameters determining the shape of the path, not those locating them in space. The simplest case is the one-parameter family of circles. So the Greeks were right in trying circular paths first. But by now we see that no circle is compatible with the observed positions. They next tried adding an epicycle to the circle. This family does include circles as special cases (the radius of the epicycle being 0), but it is a three-parameter family. And when they allowed any number of epicycles, they allowed hypotheses of arbitrary complexity, which is methodologically utterly unacceptable.[11] Instead we must search for a two-parameter family of curves having circles as a special case. This family is clearly the family of ellipses (determined by major and minor axes, circles being the special case where the two are equal). In this one step Copernicus could have anticipated Kepler's main result, *from purely methodological considerations.*[12]

[11] There is a theorem the author heard quoted (though he has seen no proof) that *any* closed convex curve can be approximated as closely as desired by a system of epicycles.

[12] Cf. Karl Popper, *Logik der Forschung* (Julius Springer, 1935), sections 39-46. The author wishes to acknowledge his indebtedness to this book, even though he is only in partial agreement with Dr. Popper.

So far our examples had one or two characteristic numbers: number of parameters and the complexity of the values of the parameters. In linear differential equations we still have the number of parameters determined directly, this time by the order of differentiation. When we come to nonlinear equations, we must take both the order of differentiation and the exponents into account. The resulting order will depend on the class of equations being considered, but in general this will require the introduction of a third characteristic number. In this case the hypotheses will be ordered first according to the order of differentiation, then according to the degree, and finally according to the coefficients.[13] All of these hypotheses are stated for one variable $x$ so far. If there are several independent variables, then we must first order laws according to the number of variables, and then according to the above three characteristic numbers. (I.e., any hypothesis with two variables is simpler than one with three independent variables.) It is according to this last principle that we understand the methodological advantage of a single unified law that can take the place of many disconnected laws; e.g., Newton's laws contain many fewer independent variables than the many unrelated laws, which we had before Newton and which can be derived from Newton's laws, had together.

And finally let us apply our method to the analysis of Einstein's thinking in passing from the Special Theory to the General Theory of Relativity.[14] There were no new facts that failed to be explained by the Special Theory. Einstein was motivated by his conviction that the Special Theory was not the simplest theory that can explain all the observed facts. In accordance with the four characteristic numbers already discussed, we see that any reduction in the number of independent variables will simplify the law, even if its form

[13] This gives an order of ordinal type $\omega^3$. In general if we have $k$ characteristic numbers, we get an ordering of type $\omega^k$. No examples have so far been found which require order of higher type, but there is little difficulty in extending this method to type $\omega^\omega$ and higher types.

[14] It was a conversation with Einstein that first started the author thinking about these problems. Einstein made no metaphysical assumption, and yet simplicity played a central role in his account of his own discovery. It seemed to the author that the revolutionary success of the General Theory cannot be due to a choice whose only justification is convenience.

becomes otherwise more complicated. By the requirement of general covariance Einstein succeeded in replacing the previously independent "gravitational mass" and "inertial mass" by a single concept. This is sufficient to justify a change, but why just *those* gravitational equations? It is possible to show that in order that the equations explain known facts, they had to contain differentiation of at least the second order, and that at most the highest order terms could be linear. This describes a large class of simplest possible hypotheses, which are however narrowed by the condition that the results must (at least in first approximation) agree with what the well-confirmed Special Theory says. It was then shown that there is only one such hypothesis in this simplest class. Since this was the simplest hypothesis compatible with the known facts, Einstein was methodologically perfectly right in saying that this is the law we *must* accept.[15]

## V. FURTHER PROBLEMS

Let us return to the question of the relation of this method to Reichenbach's posits. We have pointed out that his rule of induction agrees with rule 1 (and 2) for the urn example. He points out that instead of his posit, $m/n$, we could equally well have posited $m/n + c_n$, where $c_n$, is an arbitrary function of $n$, tending to 0 with increasing $n$.[16] He believes that any choice of $c_n$ is as good as any other, and hence he sets $c_n \equiv 0$, on grounds of "descriptive simplicity." Our posit, the simplest fraction compatible with $m/n$, can also be thought of as a choice of a function $c_n$ (since the interval of compatibility tends to 0, the difference between our posit and Reichenbach's must also tend to 0), only $c$ depends not only on $n$, but also on $m$. Hence we argue that Reichenbach is quite right in

[15] Einstein is still following the same methodology. He is now trying to reduce the number of independent variables further, by combining Maxwell's Theory with his own, in his Unified Field Theory. He also believes that with this new theory he will be able to achieve a further simplification, namely the elimination of singularities from the laws of Physics. (This would lead to a new characteristic number(s) relating to the number and type of singularities in the law, with a continuous law being the simplest one—having 0 singularities.) If a philosopher may venture to make a comment, the present paper indicates that Einstein is again using the right method, in spite of the opinion of the majority of his colleagues.

[16] *Op. cit.*, p. 447.

saying that the posit must be of the form $m/n + c_n$, but we argue that there is one choice of $c_n$ superior to others (since it gives us not only convergence but an excellent chance of finding the true hypothesis), and that it is not the choice of $c_n \equiv 0$.

We must also show the relation between this paper and the work on degree of credibility (confirmation). Carnap in his recent monograph[17] treats Reichenbach's posits as estimates of the true ratio. This sounds reasonable, but when we consider the very special sense in which Carnap uses "estimate," it does not seem that he is correct in his interpretation. If he were correct, then some very reasonable posits would commit Reichenbach to a most unreasonable measure of credibility. Reichenbach, on the other hand, claims that he is not committed to any measure of credibility, and we see no reason for doubting this claim. A posit is a method of selecting one hypothesis from several possible ones, not a general method of estimation. We can find a connection if we adopt the very intuitive rule of selection: From a set of hypotheses select the one having the highest degree of credibility. Then a method of positing tells us only maximum credibility values, not all values. There are several credibility measures that would give us Reichenbach's posits, but not the counterintuitive measure that Carnap assigns to Reichenbach. If our interpretation is correct, then it is easy to show the connection between our rule and credibility. We adopted a rule of selection different from the one just stated. Ours would read: From a set of hypotheses select the simplest one having a high degree of credibility. Just how high the degree has to be depends on our definition of compatibility, and on how the particular credibility measure is constructed.

There are several problems left unsolved by this paper, and the author sincerely hopes that other people will be interested in working on these (often very difficult) questions. The most important of these is to find a precise form for the fourth simplicity-condition. The purpose of this condition is to assure fast convergence, that is to enable us to reach the 99 per cent level of certainty with as few experiments as possible. A great deal more work will have to be done in investigating the relation between the ordering of hy-

[17] Rudolf Carnap, *The Continuum of Inductive Methods* (University of Chicago Press, 1952), p. 44.

potheses in this method, and the resulting $N_H$'s. This is the problem on which the recent statistical methods should prove most helpful.

Another possible method of getting faster convergence is a modification of rule 3. We might try to establish a level of simplicity and then select the hypothesis on this level which is closest to the observed values (this is the converse of our rule), or try to find a criterion combining an optimum of simplicity and compatibility.[18] The former method does not give us our theorem. But the combined method may very well give us our theorem, and faster convergence.

And finally, there is the problem that our conditions allow too many different orders. We should try the method out in many more examples, and try to find additional conditions. Ultimately we should be able to prove either that the order is uniquely determined by the conditions, or that the remaining orders are in some sense equally good.

These problems are of great methodological importance, and they are intrinsically interesting; they deserve careful study, far beyond these first considerations.

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[18] I am indebted to Prof. Nelson Goodman for this suggestion.

## *DISCUSSION*

# QUINE ON CLASSES AND PROPERTIES

ON PAGE 120 of Quine's *Mathematical Logic* we find the relation between classes and properties stated thus:

> Once classes are freed . . . of any deceptive hint of tangibility, there is little reason to distinguish them from *properties*. It matters little whether we read "$x \in y$" as "$x$ is a member of the class $y$" or "$x$ has the property $y$." If there is any difference between classes and properties, it is merely this: classes are the same when their members are the same, whereas it is not universally conceded that properties are the same when possessed by the same objects. . . . But classes may be thought of as properties if the latter notion is so qualified that properties become identical when their instances are identical. Classes may be thought of as properties in abstraction from any differences which are not reflected in differences of instances.

Quine here uses the strange notion of abstraction so often criticized by Frege. How do things or properties *become* identical merely because somebody chooses to *abstract from*, i.e., ignore, the differences between them? His account of how classes stand in relation to properties looks intelligible only because the notion of a class is so familiar. Suppose, however, that I introduced a new term "surman" (plural "surmen") and explained its relation to the term "man" as follows:

> There is little reason to distinguish surmen from men; it matters little whether we say 'Smith is a surman' or 'Smith is a man.' If there is any difference between surmen and men, it is merely this: surmen are the same when their surnames are the same, whereas it is not universally conceded that men are the same when they have the same surname. But surmen may be thought of as men if the latter notion is so qualified that men become identical when their surnames are identical. Surmen may be thought of as men in abstraction from any differences which are not reflected in differences of surname.

Would this in any way serve to explain how the word "surman" is meant to be used? Would it even be justifiable to use the term "surman" at all, if this were the way it had been introduced? I hardly think so. Possibly Quine would object that my term "surman" is not really parallel to his term "class"—that there is a difference as regards *tangibility*. Classes are to be intangible; whereas men are tangible, and presumably remain tangible even when thought of as surmen, i.e., in abstraction from any difference not reflected in difference of surname. But I do not understand the importance Quine seems to attach to tangibility. The notion is indeed used in schoolboy explanations of the difference between concrete and abstract nouns:

Abstract nouns in -io call
*Feminina* one and all;
Masculine will only be
Things that you can touch or see;

but in logic I do not think it has even expository value.

It may be admitted that the term "property" would have little value if we were so using it that expressions like "redness" or "the property of being red" were uniquely referring names of properties. Properties so regarded would involve all the difficulties that arise over classes; for instance, the property of being a property that does not belong to itself would involve a difficulty parallel to that about Russell's class of all classes that are not members of themselves; and there would be the added problem how properties were related to classes. But if we use "property" (as Frege used *Begriff*) in the sense "what a logical predicate stands for," then these abstract expressions are not names of properties; nor can any paradox like Russell's be generated as regards properties thus understood.

Of course, this notion of a property has difficulties of its own. When I say that a predicate stands for a property, is not this just a euphemism for its *naming* the property? This objection would have force if I regarded a predicate as an actual expression occurring in sentences. But in fact I should rather regard it as a common property of sentences; thus, I should say that "Smith loves Smith" and "Jones loves Jones" were sentences formed from a common predicate by supplying the respective subjects "Smith" and "Jones." In this instance, though we readily discern the common predicate, it is plainly not something that can be extracted from the sentences and displayed between quotes all by itself. The distinction between thing and property comes out in the distinction between name and predicate just because a name is an actual expression whereas a predicate is rather a common property of expressions.

Again, how can one know whether or not two predicates stand for the same property? Here I must admit partial defeat; I can suggest no necessary and sufficient criterion for such identity of reference; I am, however, prepared to state a necessary condition for it. If one predicate applies to an object and another does not, they certainly do not stand for one and the same property; for otherwise this property would both belong to the object and not belong to it. Sameness of application is therefore a necessary condition for two predicates' having the same property as their reference.

This last common-sense consideration is enough to expose Quine's

mistake in identifying properties with classes. For Quine's own way of escaping Russell's paradox is to hold that two predicates may have the same class as their extension though they do not apply to the same objects. E.g., the predicates "—is a class not belonging to itself" and "—is a class that belongs to some class but not to itself" have the same class as their extension;[1] but there is a class—viz., this common extension itself—that satisfies only the first of these predicates, not the second. I have no objection to this type of solution; Frege himself sketched one on similar lines in the Appendix to his *Grundgesetze*. It does however involve a sharp distinction between class and property; for in this instance we have *ex hypothesi* the same class, and we cannot have the same property, because the application of the two predicates differs. (It is remarkable that in the earlier parts of his *Methods of Logic* Quine is content to assume that two "open sentences" have the same class for their extension if and only if they come out true for the same objects; he does not tell us that the solution of Russell's paradox he is going to suggest will involve a restriction on this equivalence; nor, having once propounded that solution, does he indicate how matters shall be straightened out.) No amount of *abstraction* will serve to remove the difference.

A further proof of the need for our distinction may be got by considering numbers. I hold that a question of number is a question how many things there are of a certain *kind* or *nature;* the words "kind" and "nature" here are just variant expressions for my "property" or Frege's *Begriff*. Now it is easy to slide from this view into the view that a number belongs to a class. But the idea of a class as many—the many having, in Russell's words, "just so much unity as is required to make them many, and not enough to prevent them from remaining many" [2]—is I think radically incoherent. When we try to attach a

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[1] This sentence may appear inconsistent with my previous statement that a predicate cannot be displayed by itself within quotes. In fact there is no inconsistency; the actual expressions occurring within quotes after "the predicates" are not themselves predicates, but serve to indicate predicates. To take a simpler predicate as an example: when I say that "Booth shot Lincoln" and "Booth shot Booth" contain the common predicate "Booth shot—," I do not mean that the expression last quoted occurs in both sentences; plainly it does not, for neither sentence contains a dash! What I mean is that the two sentences have the common property of being related in the same way to the expression "Booth shot—"; viz., each of them is obtained by substituting a uniquely referring name for the dash in this expression; and this common property *is* the common predicate.

[2] *Principles of Mathematics*, p. 69.

number to a class $\alpha$, we are really attaching it to the property expressed by "—is a member of $\alpha$." This is not a trivial point; for when we attach a number to a property, the property is usually not expressed in the above form; and Russell's paradox seems to show that not all properties are expressible in that form.

As regards Quine's *Mathematical Logic* special difficulties arise; we can show that the formulae he takes to express number-statements will not serve that purpose. This does not, of course, mean that they are senseless or lead to contradiction, but only that Quine suggests a wrong way of reading them. An adequate symbolism for number-statements would have the effect that, no matter how "F" were interpreted, the formula read "the number of F's is 0" would be true if and only if there were no F's, and the formula read "the number of F's is 1" would be true if and only if there were something that was *the* F. Let us now interpret "x is an F" as follows:

For any class $\alpha$, $\alpha$ is a member of x if and only if $\alpha$ is a member of some class and is not a member of $\alpha$.

It is then easy to prove in Quine's system all of the theorems that may be put in words as follows:

(1) Some class is *the* F. (There is a class $\alpha$ such that any class $\beta$ is identical with $\alpha$ if and only if $\beta$ is an F.)

(2) The class of all F's is a member of 0.

(3) The class of all F's is not a member of 1.

As I said, this involves no inconsistency within the system; but it does mean that reading a formula as "the class of all F's is a member of 0" is not always consistent with reading it as "the number of F's is 0," and reading a formula as "the class of all F's is a member of 1" is not always consistent with reading it as "the number of F's is 1." This difficulty, I think, would not be peculiar to Quine's system; I think it is no less absurd to read "the number of F's" as "the number of the class of F's," than to read "the class of F's" as "the class of the class of F's." In both forms of phrase, the plural noun is used predicatively, to express a property; the class and the number alike are specified by mentioning the property. As Frege would say: *sie haben an dem Begriff selbst und nur an diesem ihren Halt.*

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# WHAT IS AN INDIVIDUAL?

I FIND Quine and Goodman's nominalistic position unclear; and this is because they have not explained to my satisfaction what, according to them, are the individuals or nonclasses. I wish to explain the reasons for my dissatisfaction and to suggest that until a better account of the notion of being an individual is available, their distinction between nominalists and nonnominalists cannot be accepted as a very helpful way of grouping philosophies or philosophers. If the difficulties (which I shall discuss) in determining the notion of being an individual are real, then there is, so it seems to me, also ground to suppose that Quine's general criterion of using the values of variables to decide the "ontological commitment" of a theory is not as fruitful as, for instance, the more traditional ways of distinguishing systems according to whether they admit of infinitely many things, or whether impredicative definitions are allowed, and so on. In particular, I shall argue that, for instance, finitism or no-infinity theory would be a more revealing banner for the position which Quine and Goodman call nominalism.

Quine and Goodman speak of universals, abstract entities, classes, concrete objects, concrete individuals, individuals, and the like. I shall talk only about individuals and classes (nonindividuals) and discuss relevant passages in the writings of Quine and Goodman, with special emphasis on Goodman's recent book.[1] Since many things are treated in this book with great thoroughness and precision, I am led to believe that on those specific points where I disagree with Goodman, definite answers in one way or the other will come with discussion.

I think I can distinguish in Goodman's book three related but separate explanations of the notion of individuals. I shall deal with them one by one.

The most illuminating answer presystematically (i.e., in ordinary language) seems to me to be his assertion that the nominalist recog-

[1] Nelson, Goodman, *The Structure of Appearance* (Cambridge, Mass., Harvard University Press, 1951). All page references in this paper, unless otherwise indicated, are to this book. To avoid misunderstanding, I wish to emphasize that the significance and interest of most questions treated in Goodman's book are quite independent of its author's adherence to a nominalism which I find unclear.

nizes no distinction of entities without a distinction of content, plus the illustration that the class of the counties of Utah is for the nominalist not different from the whole state of Utah as a single individual (p. 33). But this can, at best, be considered only as a rough account. For example, what is meant by *content* is not being made completely explicit. If a box with two layers touching each other is filled up with gunpowder, then this whole box as an individual and the whole box minus the outer layer as another individual would ordinarily be said to have the same content. Yet presumably Goodman would want to say they are different individuals. Or, if we define real numbers as certain classes of rational numbers, we ordinarily do not consider the content of the class of all reals to be the same as that of the class of all rationals. Hence, we can only conclude that Goodman intends to use the word "content" in a special way which is illustrated but not exactly characterized by his explanation and example.

Indeed, Goodman stresses the distinction between the ordinary and the technical uses of a term. Thus, he emphasizes that the technical use of the term "individual" need not coincide completely with popular usage (p. 42) and proceeds to suggest defining individuals as all and only those things which *overlap* something (p. 43). I take this as his second explanation of the notion of individuals. In offering this definition, he could not mean to suggest that this definition is more satisfactory because the use of the term "overlaps" is completely known intuitively. Rather such a definition is helpful to him, so it seems, only because his calculus of individuals characterizes the predicate "overlaps" postulationally. This leads me to what I understand to be his third answer.

In other words, individuals are all and only those things for which there is a certain relation R such that, by taking R as the interpretation of the only primitive predicate "o" ("overlaps") of Goodman's calculus of individuals, and by taking these things as constituting the universe of discourse, all the theorems (including the postulates) of his calculus are true under the normal interpretation of the constants of quantification theory. Or more briefly, individuals are the things which satisfy his calculus of individuals.

Against such a kind of explanation, it might be asked, if the technical use is to be determined by the calculus, what guides us in our construction of the calculus? Do we not need an intuitive notion of individuals (or of overlapping) to begin with? However, such questions could only arise for someone who had already understood Goodman's notion and wished to dispute its correctness. Since my purpose

is merely to understand his notion, I do not have to ask such questions, which more or less have to do with justifying his notion as right. The first problem for me is, rather, do I consider the use of postulate systems a satisfactory way of communicating one's notions? I happen to think that in many cases in general, and with regard to the notion of individuals in particular, the answer is yes, provided the calculus offered is fairly complete, in the sense that it determines to a reasonable degree the range of permissible interpretations. Indeed, to take another example, I consider the standard theories of classes (such as those of Russell and Zermelo) in many respects the clearest and most exact answers available at present to the question: what is a class? Hence, the next problem for me is to study Goodman's calculus and try to find out whether it can be considered as fairly complete.

Unfortunately, this is not easy, because he decides not to give a complete account of his calculus (p. 43). However, he does refer to published versions of the calculus of individuals (p. 42, footnote). So let us translate the postulates of these earlier calculi into his language, and assume that the results are the postulates of his calculus. Then his calculus includes only one postulate schema and one specific postulate:[2]

(1) If $(\exists w) \ldots w$, then $(\exists x)\,(y)\,(yox \equiv (\exists z)\,(\ldots z \cdot yoz))$.

(2) $xoy$ if and only if $(\exists z)\,((w)\,(woz \supset wox) \cdot (w)\,(woz \supset woy))$.

Another postulate of the older systems is replaced by a definition for identity (p. 45):

(3) $x = y$ if and only if $(z)\,(zox \equiv zoy)$.

From (2) we can show that the relation of overlapping is both reflexive and symmetric. We can also derive the ordinary theory of identity in the usual manner.

With regard to this calculus G, a few things may be noted. It admits of many different interpretations. For example, we can take the universe as consisting of a single thing $\zeta$ such that "$\zeta o \zeta$" is true. Or, we can use a model in which the universe consists of an arbitrary finite or infinite number of things. In other words, G is satisfiable in every nonempty domain. If we want to restrict somewhat the range of admissible interpretations, we have to introduce some postulates which determine an upper or lower bound of the number of things in the universe. This seems to indicate that the calculus G as it stands does not embody an adequate explanation of the notion of individuals. G differs from the older calculi in that it is isolated from the theories

[2] See *Journal of Symbolic Logic*, Vol. V, p. 108 and pp. 48-49.

of classes. Thus, in place of (1), these older calculi contain a postulate which amounts to:

(4) If the class of all z such that ...z is not empty, then $(\exists x)\ (y)\ (yox \equiv (\exists z)\ (\ldots z \blacksquare yoz))$.

If the class theory happens to contain postulates such as the axiom of infinity of the theory of types, then (4) is much stronger than (1) and can generate many different new things on account of the accompanying class theory.

Since the calculus G does not even delimit roughly the range of admissible interpretations, it only partially determines what individuals are and this must be fixed by supplementary decisions. Goodman asserts (p. 35) that for different actual systems quite different elements may be chosen as individuals. And, in general, he wants to admit all those interpretations which satisfy the postulates of G. More exactly, he wants to admit all systems which contain G and certain additional postulates or also additional primitive predicates. But this obviously will not do. For instance, we could add to G strong postulates of infinity, or we could even adjoin (say) the whole Zermelo set theory to G. The system resulting from adding the Zermelo set theory to G would be just like his realistic system (pp. 147, 173) in containing just one kind of variable, one additional predicate ("$\epsilon$" in this case instead of his "W"), and a number of additional postulates. Clearly he does not want to consider such a system nominalistic. Hence, we need to use judgment in choosing our systems and interpretations. But then we seem to have to assume some intuitive notion of individuals to guide our judgment. Undoubtedly such intuitive notions often differ, and there is probably no generally acceptable procedure to resolve such differences. For instance, I confess that I have no intuition with regard to the alternatives as to whether there are infinitely many individuals, and yet this, as we shall see, is a most crucial question regarding one's understanding of the nominalistic position.

At some places, Goodman seems to emphasize unduly the theoretical implications of the notation of a system (p. 35). He seems to contend that we are perfectly free in selecting the individuals to be admitted, so long as we do not also use a different kind of variable which takes classes as values. However, since we possess class theories (for instance, Zermelo's) each of which contains one kind of variable, and since, if we want to, we can obviously use some other symbol in place of the obnoxious "$\epsilon$," clearly we can decide whether a system has variables taking classes as values, or not, only by examining its postu-

lates and not merely by examining its notation.[3] However, when we come to deciding whether to accept certain postulates, I think we usually possess more helpful criteria than just asking whether it commits us to classes. In any case it would certainly be extremely difficult to construct a general theory about deciding which kind of postulates commit us to interpret the variables as taking classes as values. I think, for example, a much more useful way of deciding the commitment of postulates is to ask whether a postulate or a postulate system requires a domain of infinitely many things for its interpretation.

Goodman remarks specifically that his calculus is to contain no postulate implying that the number of individuals is either finite or infinite (p. 48). Therefore, it is not allowable to take as a postulate of his calculus any of the usual postulates of infinity, such as:

(5) $(x)\,(\exists y)\,(x \neq y)$.
(6) $(x)\,(\exists y)\,(y \neq x)$.

Moreover, this also precludes the possibility of including in the calculus any postulate saying that the number of individuals is no more than a definite positive integer (for instance, 100 or $10^{37}$):

(7) $(\exists x_1)\ldots(\exists x_{100})\,(y)\,(y = x_1 \vee \ldots \vee y = x_{100})$.
(8) $(\exists x_1)\ldots(\exists x_{10^{37}})\,(y)\,(y = x_1 \vee \ldots \vee y = x_{10^{37}})$.

Other postulates which are being thus precluded are those, if there be any such, that exclude infinity but do not fix any numerical limits. Such postulates would express in effect something like:

(9) There exists some indefinite positive integer $n$, such that there are no more than $n$ individuals.

The view implicit in this attitude seems to be that whether the number of individuals is taken as finite or infinite does not affect his nominalistic doctrine and language. And this is a point which I wish to dispute. I wish to suggest that, so far as our power to comprehend is concerned, the introduction of infinity generates more decisive and definite difficulties than the talk about classes. If we assume only finitely many individuals, both the calculus of individuals and that of classes should be considered, by any reasonable standard, as comprehensible. On the other hand, if we assume some natural postulate of infinity with regard to individuals, even the calculus of individuals might appear to be not completely acceptable to the radical nominalist.

Consider first the alternative that there are no more than a definite

[3] In other words, it is, in my opinion, not sufficient to underline the words "individual," "overlap," etc., but it is necessary to develop an adequate calculus of individuals. If the meaning of a word is its use, it is important to know what statements involving the word are taken to be true.

finite number of individuals: for instance, that assertion (8) is true. Then, as Quine has shown in great detail,[4] the whole nonnominalistic theory of classes (in the form of the simple theory of types with (8) replacing the axiom of infinity) becomes trivialized and can be explained away as a mere manner of speaking. As a result, we can say that, if we assume a definite finite upper bound to the number of individuals, then there is no need to distinguish the theory of individuals and of classes, between nominalistic and nonnominalistic languages. It is true that the scrupulous nominalist might object to the use of "..." in the statement of (8), on the ground that there would not be enough matter to write it out explicitly.[5] However, it would be utterly unbelievable that anybody should be able to comprehend some sophisticated calculus of individuals but not (8). The finitistic nominalist, if such there be, only refuses to admit infinity, and therefore, incidentally, refuses to admit certain things ordinarily asserted in class theory. The difference between him and us ordinary people depends on whether infinity is recognized, not on whether classes are.

Let us now turn to the more serious alternative of adopting some postulate of infinity of individuals. Although Goodman explicitly declines to include any postulate of infinity in his calculus, he apparently does not consider all such postulates absurd or plainly false. For example, he mentions in a quite friendly manner the statement (our (6)) that every individual has a proper part (p. 48), and asserts that an individual may be divisible into any number of parts (p. 42). Suppose we add (6) to the calculus of individuals as a new postulate. Then we can see that the resulting calculus of individuals is far more complex and ethereal than the theory of classes founded on finitely many individuals.

Thus, an individual $a$ has a proper part $b$ which has a proper part $c$, etc. Hence, given any individual $a$, we can find $b$, $c$, $d$, etc., such that $a \supset b \supset c \supset d \supset \ldots$. Consider now the individuals $a$-$b$, $b$-$c$, $c$-$d$, etc. which are discrete from one another and are proper parts of $a$. Therefore, each individual contains an infinite number of discrete proper parts. Hence, once we admit the simple postulate (6), use of the calculus of individuals opens the door to infinitely many proper parts, infinitely many proper parts of each proper part, etc., of each of the given individuals.

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[4] W. V. Quine, "On Universals," *Journal of Symbolic Logic*, XII (1947) pp. 74-84. Compare also Kurt Gödel, "Russell's Mathematical Logic" in *The Philosophy of Bertrand Russell*, 1944, ed. P. A. Schlipp, especially p. 144.

[5] Quine, *op. cit.*, p. 84.

Despite all these considerations, I am inclined to consider the alternative of admitting infinity more interesting. In my opinion, a comparative study of a calculus of individuals (with infinity assumed) and the ordinary class theories might lead to illuminating distinctions. Such an investigation is, I think, one direction which could perhaps make the position of rejecting everything except individuals significantly fruitful.

Goodman does not agree to this view but feels [6] that any assumption of infinity is highly objectionable. He does not wish to use any of the postulates like (5)–(8), but is more interested in postulates that would give the effect of (9). Indeed, Goodman himself first brought up and discussed in his classes the problem of how such a postulate can be expressed in his calculus. William Craig has conjectured that we can prove the impossibility of formulating any such postulate in the framework of Goodman's calculus of individuals. The difficulty seems to be, unless infinity is assumed, there is no way of introducing variables which would range over all positive integers; and in order to express (9), we seem to need such variables. For instance, it is possible, as Goodman has observed, to express both that there is a universal individual containing all individuals, and that there are atoms which have no individual proper parts. But to exclude infinity, we seem to need in addition something like a postulate of Archimedes which assures us that there is some positive integer $n$ such that the universal individual is at most $n$ times as (say) big as any given atom. Goodman appears to consider (9) to be true, although he wants also to say that the language used in expressing (9) is a language which he does not understand.

If we assume (9) instead of postulates such as (8), then the easy way, mentioned above, of explaining away classes is no longer directly available. However, I think, we should still be able to dispense with (9) in every particular case. In the first place, (9) is thought to be useful where the universe dealt with is finite but the number of individuals quite unknown. In most ordinary cases, when we know that the number is finite but have no exact knowledge of the number, we are able to fix a rough but safe upper bound (sometimes with considerable reflection); such as in the case of the number of cats in the world, or the number of hairs on the heads of all people on the earth.

[6] I have asked Professor Goodman to read an earlier draft of this paper, and received from him helpful explanations and criticisms. In this revised version, I am using his remarks and statements freely, fully aware that these need not represent faithfully his final position on the matters I consider.

Yet even the finitude or infinitude of the number of individuals in each of Goodman's systems is apparently a question not easily decidable. In any case, if we know that the universe is finite, we can argue, so to speak, schematically and carry out the elimination of classes as before. Thus, if (9) is true, there must exist an upper bound to the number of individuals. Assume this number is t (a positive integer, we do not know exactly how large). Then,

(10) $(\exists x_1) \ldots (\exists x_t)\ (y)\ (y = x_1 V \ldots\ V y = x_t)$

must be true and can be taken as a postulate. Therefore, we can again carry out Quine's procedure [7] and explain away the classes.

To sum up. If we assume that there are only finitely many things altogether and stick to a language that excludes infinity, then the talk about classes is in any case clear and harmless. On the other hand, if we admit infinity, Goodman finds that the calculus of individuals would also lose its philosophical and intuitive advantage. Therefore, the appeal of nominalism to him is largely caused by his association of nominalism with the rejection of infinity. However, it is certainly not generally agreed that individuals are finite in number. Taking all these considerations into account, would it not be more illuminating to call his position finitism (or no-infinity theory) rather than nominalism?

Personally, I am inclined to think that it is hard to adhere to such a finitism. For instance, the use of the schema (1) in G which amounts to an infinity of postulates, and the ability to understand (9) (even though not to express it), tend to indicate that in certain very definite senses even the "nominalist" understands and uses infinity. Or again, how are we going to develop science and mathematics if even the use of variables taking all positive integers as values is not allowed? Maybe diligent and thorough analysis of the foundations of science would some day yield a satisfactory theory which would prove that all talk about infinity is nothing but a short-cut method of speaking about finite and discrete entities. That would be a great achievement indeed. Meanwhile, given the actual knowledge we do possess now, we are, I think, justified in considering, at the present stage, the no-infinity theory as either basically untenable or at least as too utopian to be interesting and significant.[8]

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[7] See Quine, *op. cit.*

[8] This paper was completed in March, 1952, when I had not had the opportunity to see the interesting discussions by Professors Hempel and Lowe (*Philosophical Review;* January, 1953). Since these authors are apparently interested in somewhat different problems, I have decided to let the original text stand.

# THE ANALYTIC AND THE SYNTHETIC

## A TENABLE "DUALISM"

THE FIRST part of this paper will constitute a brief exposition of the views held by Morton White and W. V. Quine regarding the analytic-synthetic issue. The expository portion will be restricted to one phase of the problem: the attempt to formulate criteria in terms of which analytic may be distinguished from synthetic judgments. White endeavors to show the futility of attempting to establish behavioral criteria. Quine deals with various definitions of "analytic" and "synthetic" and tries to show that none of them is adequate. Quine explicitly indicates, in a footnote, that he is in complete agreement with White's analysis and is merely trying to extend his arguments.[1]

White describes a primitive community, the members of which are to be investigated in order to determine whether visiting anthropologists have correctly characterized the statements, "Man is a featherless biped" as synthetic for the natives, and "Man is a rational animal" as analytic for them. After discarding a few alternatives he remarks:

> Probably the most helpful interpretation of this mode of distinguishing analytic and synthetic is that according to which we obtain the following: when the natives have applied the word "man" to certain objects and are then persuaded that these objects are not rational animals, they immediately, without hesitation, withdraw the predicate "man." They contemplate no other means of solving their problem. But when they have applied the word "man" and are then persuaded that the things to which they have applied it are not featherless bipeds, they do not withdraw the predicate "man" immediately but rather contemplate another course, that of surrendering the hypothesis that all men are featherless bipeds.[2]

White objects to this criterion, indicating that although he thinks it may be "workable," it will "result in our finding that many firmly believed 'synthetic' equivalances are analytic."

Quine assumes the adequacy of White's analysis, and attempts to determine whether any proposed *definition* of "analyticity" will do the

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[1] W. V. Quine, "Two Dogmas of Empiricism," *Philos. Rev.*, LX (January, 1951), p. 20.

[2] M. White, "The Analytic and the Synthetic: An Untenable Dualism," in *John Dewey: Philosopher of Science and Freedom*, ed. Hook, p. 328.

job. Both Quine and White distinguish two types of assertions traditionally called analytic. The first constitutes the class of logical truths, and are of the form "if p then p" or "No unmarried man is married." The second is typified by "No bachelor is married." It is characteristic of the latter type that they may be transformed into logical truths by putting synonyms for synonyms. Thus, by substituting "unmarried man" for "bachelor" we obtain a statement of the first type. But, both Quine and White contend, the notion of "synonymy" is no clearer than "analyticity." They concede that they will regard their objection as overruled if we are able to define or better understand "synonymy." Part of Quine's argument is designed to show that no definition of "synonymy" is possible.

Preliminary to his discussion of "synonymy," Quine discusses the proposal that "analytic statement" be defined in the following way: ". . . a statement is analytic when it is true by virtue of its meanings and independently of fact." He suggests this will not do because of difficulties of understanding what is meant by "meanings." He distinguishes between a theory of meaning and a theory of reference and concludes: "Once the theory of meaning is sharply separated from the theory of reference, it is a short step to recognizing as the business of the theory of meaning simply the synonymy of linguistic forms and analyticity of statements; meanings themselves, as obscure intermediary entities, may well be abandoned." [3]

Thus, if we ask, "What does 'creature with a kidney' mean?," we do not request the denotation or enumeration of objects to which the expression can be correctly applied. In order to answer this question, we must provide some sort of synonymous linguistic form. But if this is how we answer such a question, why speak of "meanings" at all? It is sufficient that we speak of synonyms. However, having discarded these "obscure intermediary entities," defining either "synonymy" or "analyticity" in terms of "meaning" is precluded.

It is clear that if Quine's objections to defining "analyticity" in terms of "meaning" are rejected, as far as our problem is concerned the attempt to define "synonymy" loses its prime significance. It is here contended that "analyticity" *should* be defined in terms of "meanings." Therefore, the various attempts to define "synonymy," which Quine alternately enunciates and attacks, is not discussed in this paper.

[3] Quine, *op. cit.*, pp. 22-23.

## II

What have the arguments offered by White and Quine proved? I think they have successfully demonstrated that if we want a criterion or set of criteria, which, if applied in the case of *any* assertion having the grammatical form of a declarative sentence, will enable us to determine whether that sentence in that particular context is analytic or synthetic, then our search is doomed to failure. Neither behavioral criteria nor any other kind of definition seems adequate to the task. Does this force us to discard the distinction?

I will argue, first, that the difficulty in establishing criteria, behavioral or otherwise, is not sufficient reason for abandoning the analytic-synthetic distinction; just as a driver would not be expected to give up his distinction between the left and right-hand sides of the road because the Bureau of Highways has neglected to authorize white stripes down the middle of a few outlying thoroughfares. The analogy is apt because it conveys the idea that *men are able to fix the distinction whenever it becomes important to do so.* Second, I shall argue that an analytic statement is true by virtue of the meanings of component expressions. This two-fold analysis involves answering two questions: (1) What function does the distinction serve? and (2) If the distinction is useful, how are we to explicate it?

In answering the first question, let us consider a fictitious historical illustration.

Many years ago two famous biologists, Sam and Max, engaged in a long dispute. At issue was the status of the whale. Was it mammal or fish? Sam reasoned as follows:

1. All mammals are terrestrial.
2. Whales are not terrestrial.
$\therefore$ 3. Whales are not mammals.

Max insisted that whales were mammals, and that Sam's basic assumption, "All mammals are terrestrial," was in error. The controversy raged for many months. The papyrus was filled with arguments pro and con. Biologists split into two camps over the issue; the Mammalians and the Nonmammalians.

The country in which the dispute occurred was strange indeed. The king, a wise and noble fellow, had decreed that all scientific controversies extending over a twelve-month period be investigated by his court logicians, and an authoritative decision as to the character and most plausible resolution of the dispute handed down. After twelve months had passed, Sam and Max not yet having come to agreement,

George, the king's head logician, was assigned to the case. George saw quickly that if the disagreement over the initial assumption, viz., "All mammals are terrestrial," could be resolved, the controversy would evaporate. He decided to determine whether this assumption, let us call it S, was analytic or synthetic for Sam. If analytic, then the problem would become one of more or less adequate linguistic conventions. But, if synthetic, then evidence would be the final arbiter. George asked Sam, "Would a creature being in every respect like a dog, except that his respiratory organs permitted him to inhabit the bottom of the sea, be a mammal?" Sam's reply was entirely inconclusive. The interrogation continued, Sam admitting that he might be wrong about S, but failing to conceive of any circumstance which would cause him to alter his judgment. What is George to conclude as a result of his investigation? Should he, because he is unable to come to any decision regarding S, as related to Sam, jettison the distinction between analytic and synthetic? As a matter of fact, George concluded that Sam's failure to be decisive about S indicated, not the bankruptcy of the distinction, but precisely that Sam had not been clear and specific about the meanings of the component expressions. It was with good reason that the king had chosen George to be head logician. He was aware that the distinction between analytic and synthetic *functions as a stimulus to clarity; not necessarily as descriptive of actual usage.*

At any given stage of inquiry it is indeed possible to point to various statements employed with such universal ambiguity as to defy characterization in terms of analytic or synthetic. But far from undermining the validity of the distinction, it calls attention to the need for greater specificity and clarity in linguistic usage. Such distinctions exist for the sake of inquiry; it matters little that certain sentences do not exemplify these "dualisms." We discriminate between analytic and synthetic, not because most assertions *can* be characterized in one of two ways. It is rather as a result of our desire to reform usage, for the purposes of inquiry, that we establish the distinction as a functional ideal which can, in given contexts, be fruitfully attained.

It might also be remarked that the precise status of a statement (S) may vary. At one time S is analytic; at another, synthetic. There is no inconsistency here; only awareness that the demands of inquiry are ever changing. Whereas defining "mammal" in terms of "terrestrial" may have suited the needs of biologists at one stage of their science, subsequent discoveries have forced change. Choosing between alternative definitions of a concept is often an entirely arbitrary matter. For example, whether the phrase "objects x and y are of equal weight" be

defined in terms of a lever's equilibrium, or in terms of elongating a spring, equal lengths is a matter of indifference. However, once a definition is chosen, that weights, already known to be equal, behave in prescribed fashion in the other situation, becomes an empirical matter. Thus, assuming there are no special reasons for preferring one definition over the other, the definition of "objects x and y are of equal weight," is bound to shift from context to context. But in any specific context we should, barring lack of clarity, be able to determine which statement is analytic; which synthetic. If this is not the case we can be quite certain that there is some confusion.

However, if the distinction between "analytic" and "synthetic" does play an important role in inquiry, it is fair to ask for an adequate explication. But the fact that the distinction has important consequences guarantees its retention no matter what difficulties are involved in defining the term "analytic" and distinguishing it from "synthetic."

I shall suggest one avenue of analysis in the hope that it may prove useful for dealing with the problem raised by Quine and his followers.

Both for Quine and for White the crux of the problem is the practical impossibility of finding behavioral criteria by reference to which a statement in a natural language may be determined as analytic or synthetic. More fundamental is the tacit assumption that even under optimum conditions the rules governing linguistic behavior are so ill-defined, so ambiguous, and so vague, as to doom any attempt to make these rules explicit. But if what has been said is well taken, these considerations are irrelevant to the important problem that arises in the context of inquiry: that of *fixing* meanings, thus obtaining clarity of discourse. In a highly sophisticated scientific debate, the use of language suffices to distinguish analytic from synthetic judgments. Moreover, these verbal cues are important, not for the sake of identifying a sentence as analytic or synthetic, but as indicative of which meanings are, and which are not, fixed in the context of a given discussion. It is only when we have fixed the meanings that we can begin to determine the status of various assertions. A disciple of Quine might object, "By what right do you introduce these obscure intermediary entities, meanings? Are you accepting the view that analytic propositions are true by virtue of meanings? But then how do you cope with Quine's devastating critique of such abstract fictions?"

In fact, it can be shown that there are no paradoxes, no philosophical difficulties involved in defining "analytic statement" as "statement true by virtue of the meanings of component expressions."

What has Quine's critique of "meaning" proved? He claims to have shown that this conception is unfruitful. The purposes of the theory of meaning, he observes, are served through formulation of synonymous expressions. Thus, when we ask, "What does 'x' mean?," the reply comes in the form of a linguistic expression, 'y', 'y' being a synonym for 'x.' But, though this be granted, one wonders whether the use of such synonyms in answering questions about meaning warrants outlawing the conception "meaning." After all, our original purpose is usually, *not the formulation of a synonymous expression, but communication.* It is not the only method. Often we point, gesture, draw pictures. It frequently happens that what we take to be a synonymous expression is not *understood* by the party with whom we are conversing. Nevertheless, we rely on a common fund of meanings which are prior to any specific attempt at communication. How, one may ask, can we be sure that these meanings of expressions are stable, clear, and univocal? The answer is, of course, that we cannot always be certain. We can only assume this to be the case as long as we seem to communicate. For example, I can be reasonably sure my brother and I attribute the same meaning to "uncle" as long as he calls those things "uncle" which I believe are his uncles, and, when requested, defines "uncle" or agrees to a suggested definition of that term which I would also accept.

Perhaps much more fundamental reasons for dispatching "meaning" to the graveyard of archaic concepts underly Quine's argument. But the one explicitly offered in his paper is certainly inadequate.

The distinction between analytic and synthetic functions as a means of eliciting clearer formulations. We *make* sentences analytic or synthetic by *fixing the meanings* of component expressions. Thus, it seems quite reasonable to explicate the distinction by maintaining that analytic sentences are true by virtue of meanings; synthetic judgments, true or false by virtue of the relevant facts.

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# A NOTE ON THE REFLEXIVE PARADOXES

MR. TOMS offers the following solution of Russell's paradox.[1] We cannot assume that, however the predicate-letter $F$ is interpreted, there is a class of which any given $x$ is a member if and only if we have $Fx$. We can, however, assume, without restriction on the interpretation of $F$, that there are two classes of classes, *half-classes:* (1) a *lower* half-class, containing just those classes *all* of whose members are $F$'s; (2) an *upper* half-class, containing just those classes *outside* which there are *no* $F$'s. But we cannot in general assume that the half-classes (1) and (2) have a common member, the class of all $F$'s.

Mr. Toms says that the half-classes are entities "of smaller intension" than the class of all $F$'s. I think this is a confusion.

The predicate "class every member of which is an $F$," and the predicate "class outside which there are no $F$'s," are indeed of smaller intension than the predicate "class of which something is a member if and only if it is an $F$." But whereas the extensions of the first two predicates are (1) and (2) respectively, the extension of the third predicate is not the class of all $F$'s but the class whose only member this class is.

In any event, Mr. Toms' assumption of half-classes leads to contradiction. We need only interpret $Fx$ as "$x$ is not a member of any member of $x$" and consider the lower half-class determined by $F$. Call this class "$\alpha$."

(A) Let $\alpha$ be a member of $\alpha$. Then every member of $\alpha$ is an $F$; so $\alpha$ is an $F$. Hence $\alpha$ is *not* a member of any member of $\alpha$. But *ex hypothesi* $\alpha$ *is* a member of such a member, viz., of $\alpha$.

(B) Suppose $\alpha$ is not a member of $\alpha$. Then some member of $\alpha$, $\beta$ let us say, is not an $F$; that is, $\beta$ is a member of some member of $\beta$, let us say a member of $\gamma$. Since $\beta$ is a member of $\alpha$, every member of $\beta$ is an $F$; hence $\gamma$ is an $F$. On the other hand, $\gamma$ is a member of $\beta$, and $\beta$ of $\gamma$; hence $\gamma$ is a member of a member of $\gamma$; that is to say, $\gamma$ is *not* an $F$. Here again we have contradiction.

It follows that we cannot assume in general that there is a class of classes containing just those classes every member of which is $F$ (a "lower half-class"). It might similarly be shown that there is not in

[1] *Philos. Rev.*, LXI (1952), pp. 551-567.

general an "upper half-class." The proofs required are hardly more complicated than those which generate Russell's paradox.

Mr. Toms may perhaps not accept my statement of his views. But I think that if I have misunderstood him the imprecision of his own language is partly to blame. And in this region of thought ideas imprecisely expressed cannot be of much use to readers.

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# REVIEWS OF BOOKS

*THEORY OF ORDER.* By W. DONALD OLIVER. Yellow Springs, Ohio, Antioch Press, 1951. Pp. xii, 345. $5.00.

Philosophers who develop their world view by elaborating the consequences of one or a few clearly defined ideas are in danger of ending with a formal system which does not adequately deal with empirical situations or with practical problems. Professor Oliver believes that the concept of *order* mediates between the formal and the empirical; it can be employed so that it will not only lead us through so much of existence as reason can trace, but also provide the clue to the practical control of things. Order can be defined with sufficient generality so as to encompass a great variety of orders, for all thought, whether concerned with formal or empirical subject matters, "functions against a background 'order of connectedness' or it is directed toward a discovery of such an order" (p. 3).

An order that is significant is not just any empirical sequence, nor any merely serial arrangement of terms or formal symbols. It always involves the correlation of two serial arrangements, one of which, termed a "base series" may be provided by a set of items whose relative positions are fixed by the relation "successor of" and named, say, "0," "1," "2," etc. An order may then be defined as "an arrangement of a set of entities that is produced by the correlation, according to a rule, of one arrangement of these entities with another arrangement independent of the first" (p. 19 f).

In Part I, Professor Oliver expounds the theory of order, and discusses kinds of order: arbitrary, artificial, and natural. Most of the remainder of the book consists of applications of the theory of order to a variety of philosophical problems. He shows, for example, that the requirement that the arrangement of a system of symbols be independent of the arrangement of the entities symbolized, invalidates the argument of the materialist (or of the idealist) who attempts to prove a universal determinism and includes his own thought within the determined system. This does not prove that the universe is not determined but only that "knowledge that it is determined cannot be had by any being who is a part of the universe" (p. 59). It seems to this reviewer that this need not be taken as an admonition against postu-

lating determinism in any subject matter under investigation, provided that the system of symbols on a given occasion be not included in the portion of the universe symbolized on that same occasion.

In an illuminating chapter on formalization it is argued that a purely descriptive account of the world cannot be given. We cannot avoid employing the concept of a permanent entity occupying positions in space. Such entities are formal constructions located in a formalized medium. "It will be my thesis that all of the natural entities with which we deal, either in our common experience or in science, are to some extent formalized and that, hence, there is always in such entities a sort of 'tension' between the entity as formalized and the entity as something 'to be known,' *i.e.* not completely formalized, something to which our formalizations have to conform." It will be seen that Professor Oliver is here giving their due both to the Kantian, for whom the experienced world necessarily has a form contributed by the mind, and to the pure empiricist who believes that a description of his world, just as it comes, is the fact about the world to be known. Both are only partially correct. There are no necessary forms for all possible experience (nor does that which is to be known dissolve entirely into the formalization of it); but neither are we mere spectators of fact. A pragmatist might interpret this as saying that formalization of a subject matter consists in devising a conceptual structure (e.g., space, atoms, and equations relating their states and positions) which we may retain, modify, or reject according as the deduced consequences of actions or experiments, guided by that conceptual structure, turn up or fail to turn up in experience. If this is not an incorrect expression of his meaning we may take it as evidence of the naturalistic and "perhaps pragmatic" leanings to which Professor Oliver admits in his last chapter.

Any order requires identifiable entities arranged in some medium. Parts II and III deal, respectively, with "The Entity" and "Theory of Media." Spatio-temporal position as well as qualitative character is required to frame a definition by which the entities of a particular physical system may be identified. Professor Oliver at this point anticipates the criticism that an absolute position in space-time cannot be identified and cannot, therefore, be used to identify a particular entity by the position it occupies. The reply is that an entity may occupy a position in space and time that is unique in the way it is related to the positions of other entities and especially to the position of the observer (p. 109). Thus by making the pattern, or the behavior sequence of qualitatively discriminable items the basis for defining a

set of entities so that they can be uniquely identified, the theory of order is employed to steer a middle course between a philosophy which must postulate substances whose identity rests upon a changeless essence, and a philosophy of complete relativism whose entities dissolve into a system of relations with nothing to relate.

In Part IV, "The Theory of Abstraction," Professor Oliver makes a new attempt to straighten out some old difficulties in the philosophy of Hume that grow out of the doctrine of the separateness of distinguishable ideas. He finds Hume here to be in a particularly difficult predicament because Hume's doctrine of the self as merely a sequence of awareness should not permit him to separate himself from his ideas and to speak of the mind "calling up" or "associating" ideas; nor, as previous critics have observed, is vivacity an adequate basis for distinguishing impressions from ideas. Furthermore, ideas that are completely separable bear no internal mark by which they are more naturally arranged in one order than another, whether the arrangement be in nature or "in the mind," or made by the mind attempting to reproduce the order of impressions previously found in nature. In a word, Hume's idea is not an arrangeable entity, and there is nothing in it to connect it to anything else, to persist when not perceived, or to represent anything beyond itself. "But we must recognize the fact—or what I take to be a fact—that it is the function of ideas to represent, to connect. An idea may be an object for our perception or contemplation, but it also requires an object, a reference external to itself. Whether hypostatization be a sin or not, we must indulge in it!" (p. 271).

Unfortunately, Professor Oliver's attempt to supply a more adequate account of abstract ideas than Hume's philosophy permits, is the least clear part of his book. The upshot seems to be that abstract thinking is neither, as the nominalist would have it, a juggling of particular symbols or mere names, nor, as some realists would have it, the conceptual grasp of ideal essences with a metaphysical status. Formal reasoning is not isolated from the concrete. "If any of these subjects of our discourse are to be regarded as abstract, we must treat them as embodying a structure that is similar to structures discoverable in a wide variety of subject matters. . . . The subject matter of any abstract discipline is all entities that can measure up to the definitions or enter into the relations defined by the discipline" (p. 309).

Professor Oliver has written a good book. It is not a book for the beginner, and the trained philosopher will sometimes feel that an issue has been stated in an unfamiliar way without much gain toward a solution, but the reader finds himself led through philosophical terri-

tory by a guide who seldom follows the dusty, well-worn paths, and yet arrives at a surprising number of points of interest whence a fresh perspective may be gotten on the lay of the land.

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*EXPERIMENTS IN LIVING.* A Study of the Nature and Foundations of Ethics or Morals in the Light of Recent Work in Social Anthropology. By A. MACBEATH. The Gifford Lectures for 1948-1949, delivered in the University of St. Andrews. London, Macmillan & Co., Ltd., 1952. Pp. xi, 462. $5.50.

This well-written defense of a form of self-realization theory in ethics is distinguished by its careful description of some aspects of moral thinking, and by its use, as evidence, of information about primitive moral codes.

Considering the obscurity of the bearing of facts about primitives upon ethical theory, it is interesting to see what MacBeath makes of his empirical material. But there are other things philosophers can learn from this book. The author is very learned indeed in anthropology, and has acute criticisms to make of anthropological theory and field methods related to ethics. He provides an excellent summary of available information of the moral life of the Trobriand Islanders, the Bantu, the Central Australians, and the Crow; and any moral philosopher who wishes to consult the literature on these peoples would do well to read MacBeath's account first. His chapters on the relation of morality and religion among primitive peoples, on whether the primitive mind "works differently" from the civilized mind, and whether their intellectual powers are inferior are able and authoritative, even if the conclusions are not especially novel.

The main argument of the book is that the facts about primitive moral experience support a self-realizationist ethical theory. Or, the book may be viewed as a criticism of the "atomism" of Intuitionism (Ross's self-evident *prima facie* obligations) and Ideal Utilitarianism, using facts about primitive peoples as a weapon. MacBeath ignores the analysis of ethical terms because he believes his data have no bearing on that problem; but as a consequence it is sometimes not clear just what his position is—for instance, whether some ethical principles he claims as universally accepted are to be regarded as analytic.

The essence of MacBeath's self-realizationist *conclusion* (not his

argument) is as follows. (1) Social institutions exist because they satisfy human needs, and they are subject to continuous modification when they fail to achieve this end. (Human desires are social and supra-social as well as physical; and they are generally for particular goods, not for some improved state of the self.) (2) A social or cultural system is *justified* by its capacity to provide for the full satisfaction of its members—eventually in a way harmonious with other social systems. Thus, although MacBeath emphasizes the variation of ethical codes, he is not a relativist; at least he thinks culture systems are subject to appraisal; and he argues that the military institutions of the Crow and the self-glorifying customs of the Kwakiutl stand condemned. (3) If a social system is to function effectively, individuals must comply with certain rules even when it is distasteful—e.g., must, in certain circumstances, keep agreements they do not want to keep. But different types of social systems will naturally need compliance with different rules. (4) The requirements of particular social systems, which he calls "operative ideals," appear in the experience of the individual member as moral obligations. And hence, in large measure, there is a correlation between the requirements of moral codes and the necessities (real or at least apparent) of the institutional framework. (5) The deliverances of the well-formed conscience are immediate and intuitive, as a consequence of habits of feeling and thinking having been molded from childhood by contact with the ethical system and the institutions. The intuitive dicta of conscience are not merely general rules; they inform about allowable exceptions, and about the relative urgency of conflicting obligations in a particular situation (an urgency which is correlated with the importance of the kind of compliance for the social system as a whole.) (6) In the reflective moments of intelligent people, however, especially when re-thinking a moral position or when a conclusion has been challenged, the connection of rules with institutions comes to the fore, and the individual will *justify* his moral view by appeal to the requirements of the social system. In this sense, the justification and authority of moral rules ultimately rests with the requirements of the way of life, at least as grasped by individuals. (7) MacBeath thinks Ross is therefore mistaken in supposing certain moral principles to be inherently authoritative or self-evident. A parallel objection is raised to the contention of Ideal Utilitarians that some kinds of thing are inherently good. (8) The fundamental moral principles having sufficient material content to be of practical guidance vary (again contrary to Ross) from culture to culture. The only moral universals are: (a) the goodness of loyalty to one's obligations, (b) the

obligatoriness of what is required for the general welfare, and (c) the principle of equity—that what is right for one cannot be wrong for another in similar circumstances. (9) Moral goodness is not an end to be sought. It is a consequence of seeking other things in accordance with one's (apparent) obligations.

How is any of this to be supported by empirical material? Well, many of the foregoing propositions are, or imply, factual statements: (3) to (6) and (8), and possibly others. MacBeath rightly thinks such statements should be tested by a survey of the whole field of moral phenomena. And he claims that the facts of anthropology support all the empirical commitments of his view, whereas they are incompatible with comparable commitments of other theories, especially those of Ross and Moore. Let us look at three lines of argument based on his anthropological material, concerned with points (8), (4) and (6), in that order. They are connected, and all are, in part, a criticism of Ross.

First, Ross has held that certain ethical principles are self-evident—"atomic absolutes," to use MacBeath's phrase. MacBeath's objection to this is that anthropologists are agreed that no item in primitive culture is intelligible apart from its "concrete setting in the context" of a way of life (p. 355). (Is this true of cultural universals?) Next, he argues that Ross's position on the self-evidence of these principles implies that they will be universally acknowledged by those who *understand* them. But, he asserts, primitive people are perfectly able to understand Ross's principles about promise keeping; for the evidence shows no ground for thinking them intellectually inferior. MacBeath concludes that Ross's view is therefore refuted by the fact that his principles are actually not universally accepted, at least if we include in a "principle" its degree of urgency and the allowable exceptions.

I believe MacBeath infers too easily that all primitive peoples have the concepts of moral obligation and the morally good. Conceivably, these concepts are just lacking in some cultural traditions—and it has definitely been argued recently by some anthropologists that some societies do not experience guilt or remorse. It is no easy problem to formulate a procedure for testing whether these concepts are present. MacBeath's factual point about the variation of moral codes is so widely accepted that I do not wish to question it; but I am unconvinced by the evidence he cites for it, very largely because his authorities were—as MacBeath himself agrees—unfamiliar with ethical theory and therefore not in a position to give reliable testimony on the subtle points involved. How does one decide whether one group regards keep-

ing a promise as a stronger *prima facie* obligation than does another—assuming it has been established that the meaning of "promise" is the same in both? Furthermore, Ross's position about self-evidence is sufficiently flexible (or vague) that one should tread warily in claiming that such facts refute it in all its possible formulations.

In the second place, MacBeath says that, in conformity with his theory, there is universally a close correlation between the behavior required for the smooth functioning of institutions, and the details of accepted moral rules. (This does not apply to magico-religious rules, obeyed from fear of supernatural sanctions; he separates these sharply from secular morality.) Thus he says a study of primitive institutions and their requirements

> will enable us to see how the ways of life, which their institutions in their interrelation constitute, explain and justify both the rules and the exceptions to them which different peoples regard as right (p. 100). . . . The rightness of the rules themselves . . . , the ways in which they are construed, the exceptions to them which are regarded as justified, and the relative order of urgency which is assigned to them, are explicable by, and derive their authority from, the way of life of the people concerned (p. 370).

Secular moral rules, then, are at least usually ones which are functional for the co-operating group, given the plan of its way of life. This fact explains the particular rules, recognized exceptions, and the order of urgency among the rules in particular societies; it explains the similarities of moral codes by reference to the common needs and requirements of social living (pp. 246, 413); it explains why there are different ideals for persons with different functions in the society (p. 97); and it explains why moral obligations do not apply outside the co-operating group (pp. 160, 358-362).

Many of MacBeath's statements here suggest an oversimplification, though I am puzzled about his interpretation, because in some passages he seems clearly aware that this is only part of the story. The fact is we must agree there is often a connection between the existence of a moral rule and the requirements of a way of life; and we must agree that a change in social institutions is often largely responsible for altered views of what is obligatory. For instance, the recognized immorality of sexual relations between members of the same clan presupposes clans as a social institution; and the military virtues will decline in prestige when a society (e.g., the Crow) gives up warfare and resigns itself to agriculture. The ethical ideals of a group are, then, in part a function of the institutional framework; but is this the only variable, and is it always an important variable? Drunkenness, cruelty to animals, suicide, personal assault, humility, and generosity

are differently appraised in different societies. Can one show that there are causally relevant differences in the institutional frameworks, or that the peoples in question have framed different appraisals of the bearing of these things on the functioning of their mode of life? Do societies always make the same "choices" of moral rule, where the functions, or supposed functions, are identical? Nevertheless, MacBeath's functionalist proposal is an important one, and should be tested further. Whether this conclusion, even if correct, would be a fatal difficulty for ethical rationalism, needs more discussion.

The final point I wish to discuss may be regarded as an extension or supplementation of the foregoing one. MacBeath argues that what *justifies* a moral rule to primitive men (at least in their reflective moments), what bestows *authority* on it, is the reflection that compliance is required by the accepted institutions, the way of life. He says:

> According to the anthropological evidence, then, the primitive does not regard anything as obligatory which is not a part of, or a contribution to, what he believes to be good. The only self-evident intuition which he seems to recognize is that of a necessary connection between value and obligation [p. 421]. . . . Unless an individual . . . believes that, if all the members of his society were to live according to it [the social pattern], the resulting state of affairs or form of life would be on the whole satisfactory, he will feel no moral obligation to comply with its requirements [p. 432]. . . . They regard the duties which they [the institutions] impose as binding, not out of respect for custom or tradition but because they recognise them as the conditions of individual and social well-being [p. 154]. . . . [These rules] are regarded as obligatory because, in view of the beliefs these people entertain, the rules seem to them to be conditions of a way of life which they regard as good [p. 376].

MacBeath concedes that "this is not to say that when even the more thoughtful, let alone the ordinary unreflective, member of a primitive community regards an act or rule as right, he always consciously thinks of it as a condition of a way of life which he recognises as on the whole good" (p. 377).
But he goes on to say:

> While they accept them in the first instance because they are the customs of their people, they understand why they should be as they are. They see that they are necessary for the smooth working of their institutions which they understand and find good [p. 320]. . . . Moral rules are, therefore, apt to occupy the foreground of consciousness, while the form of life whose conditions they are tends to occupy the background. But in our more reflective moments when we engage in original moral thinking, the form of life comes into the foreground. This is specially apt to happen when an accepted rule is challenged and requires justification or modification [p. 382].

MacBeath is making a sound point, with a wide factual basis, when

he points out that primitive people often display marked insight into the value of a rule, and readiness to criticize a rule in terms of functions. Clearly, *many* (but by no means all) primitive men will appeal to functions or welfare if challenged for a reason for a rule. But this is quite consistent with a typical feeling in a group that for *some* rules, no justification is necessary. And I cannot believe that the evidence at MacBeath's disposal, given the degree of sophistication in ethical theory of his authorities, warrants his conclusion. My own field experience has been that primitive men sometimes appear quite baffled that one asks for a reason for a certain rule (e.g., the rules about incest); and my informants were unable to provide as the reason for their acceptance of this rule either a functional justification or any other justification whatsoever. This raises a question of principle: what behavior of an intelligent man would warrant the conclusion that for his mind the authority or bindingness of a given rule did *not* depend on its importance for the social system? Of course, if we harry an informant until he gives us some justification for his moral principles, then we shall often get justifications—and we shall often get functional justifications, especially if we do not agree that our informant has given us the kind of justification we wanted, until he gives a functional one. But such procedure shows only something about us, not about him.

I am therefore not convinced that the evidence about primitive peoples supports MacBeath's conclusions as definitely as he seems to think. A somewhat more complicated and less tidy theory seems to me required by the facts.

My comments have touched chiefly on some points with which I disagree. But I hope they may have indicated something of the stimulating ideas and material to be found in this book.

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*ETHICS FOR POLICY DECISION.* The Art of Asking Deliberative Questions. By WAYNE A. R. LEYS. New York, Prentice-Hall, Inc., 1952. $4.75.

It would be at once a grave error and false to Dean Leys's intent to regard his book as still another text in ethics, though it is written in the form of a text. The primary intent seems to have been "to bridge the chasms of vocabulary and interest" between ethics and policy (see Preface), the philosophic drive of the book to present for

our consideration two significant enterprises, despite the simplicistic requirements of the publishing business. Dean Leys aims, then, (1) to exhibit "how philosophical ethics needs to be rewritten" in order to become applicable to policy decisions and (2) "to suggest how policy cases may be structured by questions without unduly prejudicing the conclusions" (p. 355).

Precisely because Dean Leys has very likely succeeded in "bridging the chasms of vocabulary and interest" separating ethicist from policy maker, and all the more because of what seems to this reviewer the clear advantage achieved by focusing ethical inquiry upon Dean Leys's enterprises, this reviewer feels it important to call attention, however briefly, to the vital senses in which Dean Leys has failed to show us how to "rewrite" ethics and how to "structure" policy choices.

I. The Dean proposes to rewrite philosophical ethics so that "answerable questions" are substituted for "questionable answers." His procedure involves two essential steps:

(a) One drops the assertorial content of the ethics under examination. Suppose, for example, one wants to rewrite Bentham. Then, instead of asserting Bentham's ethic as a set of true propositions, one drops the varied assertions of Bentham (that pleasure is the good, for instance) and substitutes the question: "What consequences will alternative proposals have, and which proposal will maximize pleasure and minimize pains?" (p. 13). This gets rid of ethical controversy rather neatly. Plato, Aristotle, Epictetus, Spinoza, Hobbes, Butler, Kant, Hegel, Marx, Dewey, etc. are laid side by side (throughout Part I) in the mute and uncontentious peace which binds the questions of a questionnaire.

In each case, in order to exhibit that which is to be rewritten, the author offers sketches of the ethical doctrine in question and of its historical context.

(b) One states the occasions upon which to use each of the questions. The factual and pseudo-factual assertions of the philosophers took care of this problem for them, but Dean Leys cannot avoid it. Sometimes his judgment accords with the view of the doctrine's author, as when he finds the Utilitarian question relevant in considering "legal reforms, land policy, factory legislation, social hygiene, the Ford Company and other subjects" (p. 13). Often, however, the Dean's judgment of the relevance of the doctrine would fill its author with, to say the least, a mild surprise. Thus the moral idealist discovers that his questions are for those who suffer "mental conflicts, for parties that are deadlocked, and for those who can appeal to a public" (p. 49).

And Aristotle's "ethic of approbation," translated into "What are the undesirable extremes in human dispositions? What is the golden mean that secures the highest good attainable under the circumstances?" (p. 104), the Dean judges relevant "in the context of personnel selection, in the election or appointment of public officials, in the employment of workers, and in the selection of a mate" (p. 105).

In effect, then, our author finds the *relevant* field of application for any ethic by asking himself the possible *value* to himself and to his society of the questions into which he has translated that ethic.

Because the two step procedure outlined here bears within itself the obvious seeds of increasing popularity, this reviewer hopes he will be forgiven some obvious objections:

1. Since the meaning of a question includes the conditions under which it is applied, just as the meaning of a proposition includes the conditions of its truth or falsity, the confusion of logical relevance with value to a reader (the Teacher's College Fallacy) inevitably leaves us in some doubt as to whether Dean Leys aims to rewrite "philosophical ethics" or re-create it. One has no objection to re-creation as such. But the Dean has proposed to exhibit the value of ethical philosophies other than his own (pp. 2-5).

2. While it is undoubtedly simpler to "bridge the chasms" between policy maker and philosopher by dropping the logical and assumptional framework within which the philosophers have created their ethics, more is lost even than the point of the philosopher's work. We might suffer the anguished cries of Karl Marx being told that the value of his work lies in "remind(ing) men to ask whether they are facing one of those crucial choices in which an ultimate loyalty is at stake" (p. 147) when Marx was proposing that ethics, all ethics, rested directly on a diagnosis of social conflict. But even the practitioner of policy arts might benefit in seeing the logical and systematic connection between fact, or what is thought to be fact, and directive questions.

3. Equally serious, at least, is the following consideration: Dean Leys's method commits him to a basic unhistoricity, despite the practice of presenting historical considerations somewhere at the beginning of each chapter. Thus, except in those cases where his insight is better than his method (for example, parts of Chapter 6 on the Stoics) the Dean ignores as a significant factor in determining the meaning of the ethical doctrine examined, the historical predicament to which, in some sense, that doctrine presented an answer. For there is all the difference in the world between the attempt to explain why the philosopher wrote as he did (at this the Dean usually makes some

sort of attempt)[1] and the attempt to see the meaning of a doctrine as a function of *two* variables: the historical predicament which the doctrine meets, and the kind of solution the doctrine offers to it.

Further, to pluck direct lessons from intellectual history is "unhistorical" in the sense that an attempt to assess the present possibilities of world federalism by referring to the union of the thirteen colonies is unhistorical. Unless one knew the historical conditions of either a policy of federalism or of a doctrine of ethics to be similar in all relevant respects, there is no way, without ignoring history, of making *either* transtemporal comparisons or transplantations of doctrine.

It may, of course, occur to the policy maker that he might secure his insight into the relation of knowledge and conduct, and of both to society, more directly and efficiently than by studying the ethical questions within the various systems which create them, or by considering seriously the historical claims of ethical doctrines, or by bothering to write out the ethical directives of the past as functions of certain kinds of social predicaments. One would hesitate to say that there are *not* more efficient means. But *if* the policy maker wants insight from the history of ethics, this is nevertheless the way he must get it.

II. Despite the basically intuitive manner through which in Part I Dean Leys reaches for the value of the questions he has raised there, he is entirely aware of the general problem of determining the question set or sets by means of which to "structure" the policy situations carefully described in Part II. He offers two kinds of answers to the problem: (1) Ask. "Without the cooperation," he writes (p. 204) "of those who are familiar with a given situation, a person who knows the different systems of ethics has no assurance that he is applying the system that is relevant." (Remember that the Dean is convinced that when one has applied a question one has applied a "system of ethics.") (2) Use Dewey's Instrumentalism. Even though Dean Leys has muddied the waters considerably by devoting a whole chapter (ch. 10) to Instrumentalism as asserting one set of available questions on a par with others—so that he really needs a theory to tell him when to apply his Instrumentalism—he nevertheless asserts that that point of view "enables us to make some kinds of ethics relevant to our actual choices" (p. 248).

Now it may be that Dewey's analysis does present a basis for "struc-

[1] Some of those attempts are of considerably less value than others. He tells us, for example, that "He (Hobbes) wanted to expose the selfishness of man, and he wanted to justify a dictatorial government" (p. 124).

turing" policy issues, for determining whether Kantian, Benthamite, Marxist, and such, questions are truly relevant. Probably in some sense the issues do indeed "depend upon the situation." But in no way does Dean Leys attempt to push further Dewey's exposition of the problematic situation from which standards and solutions are generated. At no point does he develop a theory of the choice situation.

"Deliberations," the Dean concludes, "would be greatly expedited if we could 'type' the choices that are likely to confront us and quickly determine 'the right questions.' Complete investigations warrant only very tentative hypotheses, and there are reasons for believing that no principles can ever eliminate all trial and error from practical judgment" (p. 355). But where would these "hypotheses" come from? What would they be like? How would we ever determine, given the notorious differences of evaluation in policy matters, what it even meant to make an error in our trials and errors, without that inquiry into the structure of choice of which no mention exists?

Nevertheless, throughout Part II, Dean Leys focuses the questions previously developed upon a variety of policy matters, and often with sensitivity and appropriateness. Is there reason to believe that his questions have actually "structured" his analyses in such a way that, even given the theoretical lapse, a useful path has been laid down?

This reviewer does not think so. The denial does not mean that the Dean's analyses were not written with his questions in mind, or that the wisdom of the examined choices is not scrutinized according to the Dean's lights. The denial arises rather from the suspicion that the sensitivity sometimes revealed in the last half of the work is no vital function of the method used, and that the method of subjecting policy matters to a pre-established questionnaire constitutes only a more or less useful mode of exposition. That is to say, the "structuring" which the Dean's method of the questionnaire imposes is essentially classificatory in character, useful perhaps for the digestion of historical events but in no sense directive or dynamic. *Never once* in the recollection of this reviewer does Dean Leys discuss a choice situation actually pending *and* tell us what, according to his understanding, "wisdom" would direct for the future.

This is no accident, any more than it is an accident that in his discussion of Aristotle's ethics in its bearing upon policy matters, the Dean omits any reference whatsoever to Aristotle's politics. Plainly, the Dean assumes that "trial and error" plus a version of Dewey's doctrine of the situation, obviate the need for basic social and political theory. But how could one expect a man, who will not forthrightly

play his political cards, to lay a bet upon the future? The extreme gravity of assuming that one can separate political theory from decision (which, presumably, makes Dean Leys confident that his method will not "unduly prejudice the conclusions") avoids the Dean's notice, perhaps, only because his implicit social philosophy—a variety of humanitarian liberalism, it would seem—is, more or less, adequate to handle the kind of relatively finished policy decisions introduced.

One reads this book, then, with a suspicion increasingly confirmed in the reading that its author has by no means proven ethics useful; and with the further suspicion that a man who studied the politics, sociology, psychology, etc. in virtue of which "problematic situations" occur, would already have posed those of the Dean's questions which were significant, never raised those which were not, and introduced others of which the Dean never spoke.

But there inheres in Dean Leys's account of the relation between ethics and policy making a root difficulty which this reviewer feels it most important to emphasize. This root difficulty is a failure in empirical method in no sense diminished by the fervor of practicality which informs the book. Concerned with the direction which knowledge can give to social choice, Dean Leys takes the institutional analysis of the process of choosing, of policy making, and of the sociological conditions for its success, as, more or less, still another approach to be reformulated in his own manner. At most he will assert that "to secure mass support for a constructive international program, some institutional reconstruction may be needed" (p. 351), but the process by which a "constructive international program" secures support in the society about to commit itself, he implicitly takes as separate from the *formulation* of a "constructive" program.

Now this notion that the means which produce a choice are logically irrelevant to the method by which one determines the "constructiveness" of that choice is, when operated upon, what is meant here by a "failure in empirical method."

The point becomes quite obvious as soon as one concretizes the methodological problem. Consider, for example, what it would mean to talk of a "method" of building houses. An unqualified empiricism would see in the building of a house a way of ordering social and physical elements—labor, capital, market conditions, technological skills, available materials—which would vary directly with the changing relationships of those elements. Rationality, that is to say, is conceived (in building houses) not in the "mind" of the builder, but in the potentialities of the complex organization brought to bear upon house

building. Rationality, becoming social, has become organizational, with this consequence: if you want to find a better method for building better houses, you are immediately and directly committed to the *political* problem of reorganizing the forces which build houses within society.

Dean Leys, then, finding the locus of method "in the mind"—even though the mind of Dean Leys be a pragmatic one—discovers also that he need not *commit* his methodological self. Further, by refusing to commit himself, by minimizing the relevance of political theory, he minimizes the significance of any "method" which he can propose as a *practical* instrument for effecting significant improvements in the process of policy making. And so the methodology of the questionnaire appears, devoid of theory, dependent upon intuition, undirective, the final outcome of a half-hearted empiricism.

Such an outcome and such an empiricism are all the more unfortunate when one considers that the "policy sciences," of all inquiries, can least afford to assume that semi-automatic operation of the social grounds of decision which exists in the physical sciences and which gives in those sciences a superficial credibility to a radical dualism between "scientific method" and society.

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*THE LOGIC OF PERSONALITY*. By BARNARD MAYO. London, Jonathan Cape, 1952. Pp. 188. 10s. 6d.

This is a provocative little book. The author shows an aversion to traditional approaches to the questions he raises, and he employs language that may seem most unphilosophical. These factors should not obscure the importance of the problems dealt with nor lead to a summary dismissal of what is interesting and important in the book.

Mayo begins by raising the question, "What constitutes personal knowledge?" He remarks that knowledge of persons is different from knowledge of their properties, the kind of knowledge afforded by psychology. Knowledge of persons involves acquaintance with them, and Mayo repudiates the sense datum analysis of perception according to which we cannot be said to be acquainted with anything but a sense datum. For this sort of view involves more than a terminological departure from our ordinary ways of speaking. It represents the acquaintance we have with persons as an incredible intellectual feat—the taking of some sense data as appearances of something of which

one is not aware at all. And it omits what is important in all cases of acquaintance with persons, namely, that being acquainted involves having become acquainted—a process that culminates in the familiar character of the one with whom one is acquainted. Mayo then describes awareness which does not involve acquaintance either with persons or with things, an acquaintance in which uniqueness or individuality is always ascribed to the object. The question thus becomes, "What constitutes the uniqueness or individuality of objects?" Since this cannot be a matter of properties, for properties are all multiply applicable, it remains that it consists in a unique one-to-one relation in which the object stands to the person having the acquaintance—a personal relation. Personality as distinguished from the individuality of inanimate objects is constituted by the reciprocity of the relation. We cannot offer a descriptive definition of "personal relation" since this would only give us multiply applicable properties. Personal relations are ultimate, but they are definable ostensibly, that is, in terms of the sorts of personal relations which all of us understand because we live through them—by responding to people and to objects in the way in which we do when we take them as unique and individual entities. Hence, understanding, being acquainted with, and knowing persons are no mere intellectual phenomena, and to ascribe personality to things is not to employ fact-finding language but language which is "dynamic." The lessons of this account are then applied to the field of art in which Mayo shows how poetry, for example, can be informative, that is, succeed in communicating, even though the language employed is not fact-stating. Finally, there is a short section on the relevance of this notion of personality to ethics, on which I shall comment in more detail below.

Mayo is correct in emphasizing the performatory, or, as he puts it, the dynamic aspects of discourse. He reminds us of the egregious blunders of the older anthropologists in their interpretations of the myths and actions of primitive men—mistakes that stem from their failure to recognize the personal relations of such people to the forces and objects in their environment. And Mayo is sound in pointing out that philosophers have erred in their accounts of the knowledge of persons when they have restricted the application of such cognition verbs as "to know," "to understand," and the like, to purely intellectual functions. For there are practical no less than intellectual or contemplative uses of these verbs—uses which nonetheless do serve the purposes of communication. And one may recognize the same dangers of the obsession with intellectual models in issues other than

those discussed by Mayo. Is there any reason to suppose that seeing the humor in a situation, for example, is simply the discovery of properties of the situation? Is there any reason, too, for supposing that seeing, believing, judging, recognizing, etc., that an action is right, or that an agent has certain rights and responsibilities, are the discovery of certain properties of which "right," "responsibility," etc., are names? Or, failing discovery of such intellection in our own cases, are we obliged to say that such cognitive verbs are inappropriately employed in such contexts since what is expressed by such locutions is noncognitive: attitudes, demands, proposals, emotions, etc.? What does follow from such locutions is just that there is cognition of some sort and in some measure, and that information is conveyed for which justifications can and often should be given. What does *not* follow from such locutions is that the seeing, believing, judging, recognizing in question is the kind of thing with which philosophers have been obsessively preoccupied: the seeing, believing, judging or recognizing of a state of affairs reportable in purely descriptive language. The trouble is that we have tended to oversimplify the account of language by employing models which have only a limited applicability. And the failure to recognize such practical uses of cognitive verbs in our discourse has as its inevitable consequence the familiar impasse in contemporary ethical theory between descriptivism and noncognitivism. But while all of this so far is sound, it is only the beginning of the story. And here I should like to call attention to deficiencies in Mayo's account which those of us who have been exploring new methods of analysis might well bear in mind.

(1) It is surely misleading to say as Mayo does that personal relations are "ultimate" in that they cannot be descriptively defined and can be understood by ostension only. For there are personal relations and personal relations, some that obscure no less than those that illumine the personalities of those with whom we are acquainted. And there is all the difference in the world between understanding a person and merely being acquainted with him or knowing him in the sense that one knows who he is, is able to point him out, or recognize him on sight. Just how are emotional factors "fused" with cognition and other factors, how do these vary from case to case? Further, precisely how do such terms as "personality," "personal relation," and the whole range of psychological terms like "see," "understand," etc., when used in this common practical sense convey information, information which in some cases is in part, at any rate, descriptive of the objects talked about? Granted the performatory use of such dis-

course, surely the performances are understandable or intelligible in the sense that they can be analyzed, even if in the dynamic or performatory sense of the term they cannot be fully understood or appreciated except by those who engage in them. The initial insight into the differences between types of discourse must not blind us to the need for the exceedingly difficult task of analysis that remains to be done.

(2) It is tempting to generalize insights. The sense datum analysis of perception rests, Mayo contends, on an "arbitrary" distinction between cognition and emotion, and an exclusion of the latter as irrelevant to the former in the analysis of perception. In a trivial sense it is true that the distinction between cognition and emotion is arbitrary—feeling contents of various sorts are generally involved in perceptual situations. But in the sense in which Mayo seems to intend this, namely, that perceptual reports when presented in descriptive discourse are distorting, what he says is extremely doubtful. For we are often interested, when we look at physical objects, in discovering and reporting their properties, and if sense-data theories are incorrect it can only be that they do not provide us with the correct analysis of such perceptual reports. While we do sometimes stand in personal relations to physical objects, this is not always so, and we do perceive things even when we do not prize them as unique and individual.

(3) Personality is, of course, an extremely important notion in legal, political, and moral philosophy. But in each of these fields so also are a considerable number of other notions. If, in moral philosophy for example, we take the notion of personality as basic or fundamental and attempt to understand one or two related notions in terms of it, without going on to explore the ramifications of these ideas to a considerable number of others and without exploring the important differences in the use of the term "person" in the fields of law, politics, morals, and the ordinary social affairs of men, we are likely to miss what is crucial for moral philosophy in the ideas we have selected for discussion, especially in the very idea of personality itself. And this is lamentably true in Mayo's case. The following is a summary of his discussion, and I present it without comment:

Morality involves abstraction and generalization. It requires that we transcend the purely personal relations in which we stand, for an action is obligatory only if it is obligatory for *any* agent in the type of situation in question. What is fundamental in morals are the attitudes of approval and disapproval. When I enter into a moral relation with a person, I enter into a relation of which I approve. Moral relations are not personal relations although they are relations between persons,

e.g., the relation of a soldier to his officer or of promissor to promissee, but they are the very same thing as the obligations themselves. The Kantian imperative that we treat others as persons requires not that we act by entering into personal relations with others (which would be absurd), but that we adopt an outlook, the recognition that people are taken as ends by others, i.e., do enter into personal relations with other human beings.

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*THOMISM AND ARISTOTELIANISM.* A Study of the Commentary of Thomas Aquinas on the Nicomachean Ethics. By HARRY V. JAFFA. Chicago, University of Chicago Press, 1952. Pp. viii, 230. $5.00.

The author begins this work with some interesting remarks on the tragic divorce between present-day "science" or disciplined reason, and value. Modern social science prides itself on being "value-free," studying values only as "facts," supposedly refraining from making any value-judgments of its own. There is an influential current of "pragmatic liberal-democratic doctrine," however, approved by many scientists, which thinks that it can appeal to such a neutral science in support of its "liberal" ethical views. But if *every* ethical view rests upon an arbitrary preference incapable of empirical verification, such an appeal is inconsistent. There is no scientific basis for any preference whatsoever, including the preferences of scientists. According to the author, "this certainly is the central reason for the low estate of the social sciences in the Western world and explains why the opinions of the various social scientists are only of the most subordinate and contingent interest to those who must (or should) act responsibly within the moral and political sphere" (pp. 3-4). Where can we find an ethics grounded in some way on evidence accessible to all?

With good reason he turns to the *Nicomachean Ethics* of Aristotle and to the *Commentary* of St. Thomas Aquinas, for both of these thinkers claim to be describing and explaining just such an ethics. But here there is a certain break in the argument. Most of the author's effort is spent in revealing what he takes to be radical differences between the two. Aquinas' whole interpretation is distorted by the influence of so-called Christian revelation, to which most men, and certainly Aristotle, have no access. Hence, his ethics is ruled out as nonrational. The upshot of the argument would seem to be that Aristotle may have

approximated something like a "scientific" ethics. But so much time is spent in devious textual interpretation that there is little left for systematic argument. The reader remains in doubt as to whether the author feels that any substantial part of Aristotelian doctrine emerges unscathed from his destruction of Aquinas. But his interpretation of each author involves so many questionable inferences and even definite mistakes that the confidence of at least one reader in the whole argument has been seriously undermined.

With respect to Aquinas, we must be content with three assertions which seem to involve serious misunderstandings of his doctrine. The first is made on page 31 and plays an important role in the later argument of the book (cf. p. 216). The author says: "thus we see by Thomas' own assertion, that according to the philosophic teaching the highest natural perfection of man is possible without moral virtue." The evidence offered for this striking statement is altogether inadequate. In fact, it runs counter to the explicit teaching of Aquinas. In his *Commentary* on the Ethics (c. 8, l. 12 and 13) he makes it clear (following Aristotle) that happiness in this life cannot be possessed without external goods to sustain the body, and without the practice of the moral virtues (cf. *Summa theologica*, 1, 2., qu. 4, art., 6 and 7).

Mr. Jaffa is anxious to emphasize the dissimilarities between Aquinas' conception of natural law and that of Aristotle. Hence, in dealing with the former, he stresses the dependence of natural law on the eternal law in the mind of God to such a degree as to confuse the two. He insists that man can gain knowledge of this eternal law only through supernatural communication: ". . . such a natural law doctrine implies divine revelation" (p. 169; cf. pp. 176 and 221), and certainly was not held by Aristotle. But this is not the view of Aquinas.

He distinguishes very clearly between the eternal law in the mind of God and the natural law by which the rational creature participates in the former. *Talis participatio legis aeternae in rationali creatura lex naturalis dicitur* (*Summa theologica*, 1, 2, qu. 91, art. 2). It is true that natural law rests ultimately on the natural order as conceived in the mind of God. But knowledge of the former does not require direct knowledge of the latter. Hence, Aquinas explicitly states that there are *two* distinct moral rules: *Regula autem voluntatis humanae est duplex; una propinqua et homogena, scilicet ipsa humana ratio; alia vero est prima regula, scilicet lex aeterna, quae est quasi ratio Dei* (*Summa theologica*, 1, 2, qu. 71, art. 6). The first does not require revelation, but only some awareness of the structure of human nature and its essential needs.

This tendency to interpret Aquinas along fideistic lines is prominent

throughout the book. Thus, on page 187 the "belief in personal immortality" is listed among the principles accepted by Aquinas on the basis of "revealed theology." Such statements raise some question concerning the author's familiarity with the basic structure of Thomistic thought (cf. *Summa theologica*, Part I, qu. 76-8). Similar questions unfortunately also arise in connection with his treatment of the *Nicomachean Ethics*.

St. Thomas, and indeed most careful commentators, even those least sympathetic, have regarded this work as an attempt to describe those different modes of rational action (virtues) which are required for the attainment of happiness. The different parts of the work have been thought to fit into a single, integral conception of the good life for man. Mr. Jaffa radically opposes this whole conception. According to him, the work cannot be understood as the expression of a single ethical view. It is rather the description of a "development" from lower and more vulgar moral views to higher and more refined views which are quite independent of and even basically inconsistent with the former.

This novel conception leads the author to insist that each successive virtue described in the *Ethics* must represent a "higher" level of moral insight and action. Thus, since courage is treated before temperance, it must lie at a "lower" level and "Aristotle must have ranked temperance higher than courage" (p. 60). Since Aristotle himself explicitly states the contrary, this assertion is most striking, and the author's arguments for concluding not only that Aristotle did not mean what he says, but precisely the opposite (pp. 62-3), are hardly convincing.

Mr. Jaffa holds that "the entire subject of moral virtue is rediscussed in Books VII through IX," and a new level of "heroic virtue" revealed (p. 54). He tries to illustrate this by comparing two passages concerning courage—one from Book III, which points out that the exercise of courage involves pain, and one from Book IX, stating that courageous acts may win a great prize and may be done with preponderant pleasure by those who have mastered the virtue. The author refers to this as a "contradiction," which can be avoided only by supposing that Aristotle has "two different kinds of courage" in mind (p. 56). If we remember Aristotle's view of the process of habit formation as always involving a passage from the relatively painful to the relatively pleasant, we may more plausibly interpret the contrast, if any, not as between two independent virtues, but rather as between two *stages* in the acquisition of an exceptionally rare and difficult virtue.

Mr. Jaffa thinks of magnanimity not as a crown of *all* the virtues, but of the moral virtues alone which lie in "the dimension of opinion"

(p. 120). Greatness of soul is not a virtue, but rather a vulgar level of morality based upon opinion and opposed to philosophic contemplation. "There is no suggestion of any philosophic attributes in the description of the magnanimous man. The description of the magnanimous man is, precisely, the description of the highest *non-philosophic* human type" (p. 121). Aristotle explicitly states that the great-souled man is great "in every virtue" (*Nic. Eth.* 1123, B 30), and also says that "something divine is present in him," which in his language certainly suggests contemplation. But to these objections Mr. Jaffa has a ready answer. In these phrases Aristotle is not saying what he really thinks; he is rather expressing the vulgar opinion of the magnanimous man who confuses divine rational virtue with the vulgar moral virtues he possesses, and thus "refers divine things to a human standard" (p. 123).

On this view, the *Nicomachean Ethics* ceases to be a single ethics. It is rather the successive account of at least three independent and even inconsistent moral systems: that of vulgar moral virtue (Books I-IV), that of heroic virtue (VII-IX), and finally that of rational contemplation (X). I know of no textual evidence supporting such a view, for Aristotle makes it quite clear throughout the work that he is considering *virtues*, not *independent levels of morality*.

Mr. Jaffa has stated a most important problem. Is all ethics a matter of arbitrary preference? Or is there a verifiable ethics founded on evident facts of human nature? When this question is seriously pressed, it must lead to a critical comparison of the views of different, realistic moralists, among whom Aristotle and Aquinas certainly occupy an important position. There are some differences in their views of natural law. But the whole subject of natural law is now full of confusion. What precisely is meant by this term? Mr. Jaffa is very vague on this topic. Other writers are more precise only at the cost of one-sidedness. What is it that is held in common by Aristotle, Aquinas, the Stoics, Grotius, Payne, and other acknowledged representatives of moral realism? Some study of the whole tradition needs to be made. Then a precise concept may be formulated. It is only in the light of such a concept that the relation between Aristotle and Aquinas may be adequately interpreted. To my knowledge, no such study has as yet appeared. I hope that it may be forthcoming soon.

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*LA PENSEE DE LEIBNIZ*. By YVON BELAVAL. Paris, Bordas, 1952. Pp. 285. 400 fr.

*LEIBNITZ AND THE SEVENTEENTH-CENTURY REVOLUTION*. By R. W. MEYER. Translated by J. P. STERN from the German (*Leibniz und die europäische Ordnungskreise*, Hamburg, 1948) with authorized revisions. Cambridge (England), Bowes and Bowes, 1952. Pp. 227. 25 s.

It is interesting to speculate why there have appeared in recent years, apart from the tercentenary anniversary in 1946, so many books on Leibniz in English, French, and German. Since Couturat's, Russell's, and Cassirer's books on Leibniz, fifty years ago, the Prussian Academy edition interrupted by the Nazi regime has put out six volumes, and more of Leibniz's unpublished papers have been edited by Jagodinsky, Schrecker, and others, though as Belaval asserts, nothing startlingly new seems to emerge; the main technical problem for the historian of philosophy is to set in order the various stages of development and influences of Leibniz' many-sided intellectual and political activities. This problem has been handled very ably by Belaval, and only incidentally by Meyer (who is more concerned with Leibniz' relations to the social upheavals of his time). Historians will be thankful to both authors for their fascinating accounts of Leibniz' intellectual virtuosity and worldly activities as clues to the scientific and philosophic, as well as political and theological, ideas of seventeenth-century Europe. The scientific and political revolutions of twentieth-century Europe have brought in their wake a worldwide need for a philosophical synthesis of the sciences, social institutions, and global ethics along international and intercultural lines; Leibniz' lifelong quest for such a synthesis, though couched in the metaphysical and theological language of his century, seems to provide a possible reason for the historical studies of Leibniz by scholars like Belaval and Meyer.

Both of their books start with the politically chaotic and economically distressed condition of the Germany in which Leibniz was born, two years before the end of the Thirty Years War; the German population was reduced from sixteen to six millions; some cities like Aix-la-Chapelle lost three-fourths of the inhabitants; Berlin was reduced to 6,000 souls. When Leibniz visited Paris in 1672, he wrote of the poverty everywhere under Louis XIV, most workers and their families eating only one meal a day. Both authors agree that Leibniz was motivated by both patriotic and cosmopolitan ideals in his diplomatic and intellectual projects; e.g., his attempted diversion of Louis XIV's armies

from Germany to Egypt, his plan for the reunion of the Churches, and his founding of scientific academies. Belaval goes into greater detail in dealing with Leibniz' scientific attainments, while Meyer pays more attention to Leibniz' metaphysical and theological writings. It is not merely personal preference that lies behind each historian's emphasis, for it is evident that scientific and metaphysical or theological ideas are intermingled in Leibniz' correspondence and essays. Neither of our authors attempts to make clear just what the logical relationship is between Leibniz' scientific and metaphysical doctrines, but quote extensively from his writings in which the two are mingled.

Were Leibniz' doctrines of space, time, infinity, infinitesimals, continuity, preformationism, and such, logically dependent on his monadology, final causes, substantial forms, pre-established harmony, etc.? Or was it his logical theory of propositions, inherent predicates, and identity that led to windowless, preformed monads? Such critical questions are eschewed by our two authors who have devoted themselves to a sympathetic historical exposition. The chief philosophical value of their historical researches and explications of mountainous texts is to provide much grist for the philosophical mill; *ipse dixit* should be the beginning rather than the end of a philosophical study of a great systematic philosopher like Leibniz.

Belaval's conclusion to his labor of love is that Leibniz' philosophy is not a panlogical or panmathematical idealism or a panpsychism which would lead to monism, but that there is an "existential realism" in Leibniz' writings to which no label can do justice, other than the name of Leibniz. I do not wish to detract from the historical value of the care and exactitude with which Belaval has vividly depicted the development of Leibniz' thought from his youthful interest in a universal language and mathematical flowering in Paris under Huygen's stimulating instruction to his fruitful correspondence with Arnauld and hundreds of leading savants all over Europe; but I can only repeat that such genetic studies are *philosophically* valuable only as setting the stage for further analysis. Belaval has very skillfully painted a very live, authentic picture of Leibniz as a man and thinker, and Meyer has given us an amply documented account of the political background of Leibniz' projects; but we are still left wondering whether there was as close a connection between Leibniz' contributions to logic and his worldly activities as there was between his theodicy and diplomacy.

Meyer smothers such questions under dubious sociological generalizations about the necessary connection between all thinking and political events, as Belaval substitutes psychological portraiture for logical

analysis. Meyer finds deep analogies between Leibniz' projects for international peace and harmony among religions (excluding Jews and Moslems, of course) and his system of pre-established harmony. Even Leibniz' universal characteristic and monadology are said to have arisen out of his desire to unify everything in sight, and no doubt there was much to unify in the political and religious wars of seventeenth-century Europe. But the mathematical problems of finding the areas and volumes of curved figures and bodies, the laws of impact and falling bodies, the measures of momentum and energy (*vis viva*), etc., antedated the cultural problems of Leibniz' time.

The continuity or cumulative progress of the mathematical and natural sciences did not proceed from the Leibnizian metaphysics of plenitude, gradation, and continuity. The pre-established harmony of Leibniz was symbolic of the ambitious aspirations of a politically frustrated scientific genius who chose to make a living as a diplomatic mouthpiece for corrupt and selfish rulers. Meyer's historical study throws a clearer light on the social background of Leibniz' metaphysics than histories of thought that refer vaguely to such backgrounds without contributing any specific knowledge about it.

Both of our learned historians of Leibniz' philosophy fail to pursue any of the critical questions raised by Couturat, Russell, Cassirer, and others. Consider, for example, Leibniz' hierarchical infinity of monads as a logical consequence of his idea of infinity taken in conjunction with his ideas of preformed, continuously graded monads. Thanks to Cantor, we know that Leibniz did not have an adequate idea of infinity, for Leibniz said that the infinity of integers contradicted the axiom that the whole is greater than the part. If, on this point, Leibniz' metaphysics depends on his logic, then it rests on an inadequate base; if his logic of the infinite is a consequence of his metaphysics, then the latter is as inadequate as its consequence. The historian can cite the dated texts for each horn of this dilemma, but this task is a necessary and not a sufficient one for the philosophically significant work of historical research in the philosophy of Leibniz. As Leibniz' unpublished papers come to light, the dates and ideas will be shuffled around, but the philosophical problems will remain. To my mind Couturat's *La Logique de Leibniz* (1901) remains the most adequate *philosophical* study of the history of Leibniz' compendious contributions to philosophy.

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*DESCARTES AND THE MODERN MIND.* By ALBERT G. A. BALZ. New Haven, Yale University Press, 1952. Pp. xiv, 492. $10.00.

*CARTESIAN STUDIES.* By ALBERT G. A. BALZ. New York, Columbia University Press, 1951. Pp. vi, 328. $4.50.

In *Descartes and the Modern Mind* Professor Balz proposes to diagnose the disorders of the modern mind and make some suggestions for a cure. What better means to this end, he asks, than a study of Descartes, who as father of the modern mind is in part responsible for its successes and failures? Professor Balz's account of the Cartesian philosophy is followed by an attempt to "imagine the reactions of a Descartes examining the great book of the world of today and seeking to locate the nuclei of the problems indicated by that book" (p. 424). The result is a metaphysical essay on a "Cartesian spirit" suggesting a remedy for the ills of the modern world.

The first part of the book, the exposition of Descartes' philosophy, is comprehensive. There are sections on Descartes' indebtedness to medieval thought, particularly to Augustine and Aquinas; on Descartes as a "man of deeply religious nature" (p. 15), for whom the reconciliation of reason and faith was not just a matter of convenience; on the first philosophy of the *Meditations;* on Descartes' proposals concerning method; and on his physics. It is unfortunate that Professor Balz's account, based as it is on an extensive knowledge of the Cartesian literature, should be repetitious, loosely organized, and, on some important points, unclear. And it is unfortunate that he has in effect chosen to express Descartes' views in language often more difficult to understand than the original, for this style is unequal to his scholarship and insight. (The use of such terms as "inquiry-power," "inquiry-conductor," "inquiry-claim," and "continuum of inquiry" to expound Descartes' theory of knowledge may strike some readers as inappropriate.)

Two features of Professor Balz's interpretation are controversial. (1) In his analysis of the *Meditations* he makes a distinction between the logical order of ideas and the order of presentation. For this purpose he introduces two figures, Cartesius, who is the voice of reason, and René Descartes, his expositor and amanuensis. The narrative of René Descartes, Professor Balz claims, does not conform to the dictates of Cartesius. Accordingly, some statements in the *Meditations* must not be taken at face value, since they "involve unwarranted implications due to the exigencies of fable" (p. 92).

The most easily misleading statement of this sort occurs in the second

meditation when Descartes, knowing *that* he is, goes on to say *what* he is; namely, "a thing which thinks . . . a thing which doubts, understands (conceives), affirms, denies, wills, refuses, which also imagines and feels." According to Professor Balz, Descartes had no right to include imagining, feeling, affirming, and denying in the nature of the mind. For, at this stage of his argument, he could not claim to be certain of the existence of sensations, imagination, memories, and volitions. Only in the sixth meditation, after he had established a real distinction between mind and matter, could his doubts about these "psychical existents" be dispelled. And only then could he know that sensation, imagination, memory, and volition pertain to the nature of the mind. In the second meditation he could know only that he was "a thing which doubts, understands, conceives, cogitates, reasons" (p. 92). And he could not be certain of the existence of any activities other than the exercise of reason.

Professor Balz has not stated his point clearly. His comments on the second meditation can be taken either as exposition or as criticism. And it is never made clear which is intended. He says that the discrepancy between the report of Descartes and the teaching of Cartesius is "due, in part, to the exigencies of exposition; in part, to the tendencies of a myth, once initiated, to control the reflection of its author; and perhaps in part to the fact that even our philosopher, like Homer, sometimes nods" (p. 92). But does he mean, in criticism, that Descartes mistakenly claimed to know, when he was not in a position to know, that his feelings and volitions exist and pertain to the nature of the mind? Or does he mean, by way of exegesis, that Descartes realized that he could not make this claim until after he had shown that mind and matter are really distinct?

If he means the latter and his comments are to be taken as interpretation, it seems obvious that they are mistaken. In the *Principles* (Part I, sect. IX), a work in which it is unlikely that Descartes would have sacrificed accuracy for ease of exposition, he defined thought [*cogitatio*] as "all that of which we are conscious as operating in us" [*illa omnia, quae nobis consciis in nobis fiunt quatenus eorum in nobis conscientia est*] and asserted that "not alone understanding, willing, imagining, but also feeling, are here the same as thought." And in the same place he claimed to be certain of the existence of his thoughts, for example, of his seeming to see and to walk, even though he could not at the time be certain of the existence of the objects which he seemed to see and of his body which seemed to walk. Thus in the *Principles*, as in many other places, he plainly asserted that he could be certain of the ex-

istence of his thoughts, meaning not only the perception of clear and distinct ideas, but sensation, imagination, and volition as well, without knowing whether the material world exists or whether mind is really distinct from body.

(2) In the chapters on Descartes' method Professor Balz defends the view that Descartes was aware of the importance of observation in science and did not disdain the experimental method. He denies that Descartes hoped to derive all truths about matters of fact from "first causes" or "principles." To the contrary, Descartes realized in practice and in theory the necessity of observation and experiment for arriving at a detailed knowledge of nature, although he did believe that some general truths about the structure of the world could be known a priori. Professor Balz, it seems, would agree to much of what Roth has said in *Descartes' Discourse on Method*. But there is an important difference in their interpretations.

According to Roth, Descartes came to believe that the method outlined in the *Regulae* and in the second part of the *Discourse* would not yield truths about particular matters of fact. He expressed his disappointment in the sixth part of the *Discourse*, in which he wrote of "arriving at the causes by the effects and availing ourselves of many particular experiments." The vision of *mathesis universalis*, it seems, was disturbed by his recognition of the need of *experiences*. And, in the *Author's Letter* to the translator of the *Principles*, his failure to provide a complete body of philosophy with exact knowledge in medicine, mechanics, and morals was attributed to a lack of experiments.

Professor Balz would disagree with Roth's interpretation of these passages. He denies that they register Descartes' disappointment and acknowledgment of the breakdown of the method which he had envisaged. For, he says, Descartes was convinced from the beginning of the necessity of *expériences* in science. In this respect he was neither a rationalist nor, as Roth suggests, a disappointed rationalist. In fact, Descartes' account of method, emphasizing both mathematical techniques and experiment, is a far more accurate portrayal of scientific method than it has usually been thought to be.

Not all of what Professor Balz says in his eulogistic chapters on Descartes' method will be easily accepted. For instance, "Descartes realized . . . the largely conjectural character of his World" (p. 370); the *as if* of his physics was not a measure of prudence, but the recognition of the tentative and hypothetical nature of his conclusions. Also, "the intellect's perception of eternal essences" must be supplemented by "constructions effected by the exercise of imagination" (p.

370). And it may be an overstatement that "magnificently, Descartes has expressed the rugged faith of the experimental inquirer" (p. 345). But, if it is, his overstatement may help to dispel the illusion that Descartes was totally unaware of the significance of observation and experiment in the search for truth.

In the last part of the book Professor Balz imagines the problems which Descartes would discover in contemporary thought and the answers he would give. In the philosophy of nature there are two relations that must be investigated: one, of singulars, the "things enjoyed and endured by children and described by Aristotle," to the "substrated substantiality in which all things participate"; the other, of the "experienced cosmos" (or "experiential accruals") to the "substitutional entities" of science (pp. 464-474). Professor Balz's speculations on these lines are perhaps excessively hard to follow because the language in which they are expressed is often obscure and he has not tried to relate them to recent and familiar discussions in the theory of knowledge and the philosophy of science.

The problem which Professor Balz thinks would disturb Descartes most is the present conflict of doctrines in ethics, politics, and theology concerning man's welfare and salvation: "his thought would focus upon the possibility of instituting a science of welfare comparable in the warrantability of its findings to the funds of dependable claims, comparable to descriptive science with respect to universal acceptability and applicability, and, finally, comparable to descriptive science in its assurances of a controlled exploitation of Nature's resources for the good life" (p. 478). Professor Balz is hopeful that a "doctrinal science" meeting these requirements will offer a "genuinely humane knowledge of man and his welfare" (p. 481), although he is in doubt about detailed proposals for this new science.

*Cartesian Studies* is a collection of Professor Balz's essays that have appeared separately. Most of them are expositions of the ideas of minor figures in the Cartesian tradition, men who defended or modified or opposed the views of Descartes. Since their works are untranslated and difficult to obtain, it is convenient to have Professor Balz's summaries at hand. And it is interesting and often rewarding, as he suggests, to "stray from the great highway of philosophy's history to wander in its collateral byways" (p. 218).

Of Descartes' followers Professor Balz has chosen to write about Clerselier, Rohault, and La Forge. The occasionalists are represented by Cordemoy and Clauberg; and Descartes' Gassendist opponents by

Sorbière and La Chambre. Perhaps the most interesting essay is one called "Cartesian Refutations of Spinoza," in which Professor Balz tells how Gerdil and Lamy, opposing Spinoza by appeal to Cartesian principles and in this way defending the faith, emphasized the differences of Descartes' and Spinoza's views and denied that Spinoza's position is the logical consequence of Cartesianism.

In addition, there are papers on the development of parallelism, on the controversy about the automatism of brutes, on the Thomistic and Cartesian conceptions of man, and on St. Thomas' notion of matter. In the last Professor Balz analyzes Thomas' notion of *materia quantitate signata*. His conclusions are that in this notion there is "something truly anticipatory of the real significance of Descartes' matter-as-finite-substance" (p. 276) and that "Thomas' system provided the *auspices* for the emergence of modern science" (p. 272).

WILLIS DONEY

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*JOHN LOCKE*. By D. J. O'CONNOR. Baltimore, Maryland, Penguin Books (Pelican Series), 1952. Pp. 223. 65 cents.

Mr. O'Connor makes it clear in his introduction that he is not concerned with Locke's *meaning* but only with what he has *said*. Between "really meant" and "actually said" there is hardly a decipherable difference, but Mr. O'Connor draws a distinction by insisting that historical exegesis attempting to establish the former "is of no importance, being undecidable" (p. 13), while analysis based upon the latter need not bother about the truth or falsity of interpretations since it is concerned with the latter only as it excites interest in philosophic thought and serves to elucidate puzzles for the analyst. Treating Locke's *Essay Concerning Human Understanding* primarily as the foundation of the British empirical tradition, Mr. O'Connor finds some material in that "clumsy pedestrian" work which throws light upon the problems of epistemology in which he is interested. But since "what is valuable in it has been developed and improved by his successors," and since many of the problems raised in Locke's work were inadequately treated and confused from our own point of view, one wonders why, despite the occasional insights into the complexities of the problems, he has taken such pains to explore the minute parts and schematisms of Locke's major work. The elaborate structure of the classification of ideas into simple-complex, confused-clear, adequate-inadequate, and so forth, is given a careful and sympathetic exposition

(chap. iii). Indeed, with the exception of Book I of the *Essay*, with its now out-dated polemic against innate ideas, there is no corner of Locke's epistemology which is not accorded the same precise and probing analysis. The political and religious writings of Locke play a minor role in his exegesis, but that is only proper in a book devoted to placing Locke in the empirical tradition.

It is difficult not to see in the very contents and methods of the *Essay* one of the systematic precursors of the dominant British empirical tradition. Locke's own contemporaries found the epistemology of this work objectionable because of its empirical bias. Berkeley and Hume continued to discuss the major problems of knowledge in terms of the Lockean formulation. The continental dissemination of this philosophy emphasized its sensationalistic features. Within nineteenth-century England, Coleridge and later T. H. Green found such a point of view inadequate because of its excessive empiricism. O'Connor reads Locke as an early empiricist endeavoring, often unsuccessfully, to disencumber himself of the metaphysical extravagances of the past. When, in Book IV, the emphasis becomes changed from the attempt "to derive all human knowledge from sensation, and reflection" to that of the "rationalist who bases knowledge on the intuition of self-evident relations between ideas" (p. 202), O'Connor can only conclude that, had Locke fully realized the nature of the difference between the first three books of his work and the last book, he would have altered his approach by first analyzing the "concepts of belief and probable knowledge and inference and only then considered our knowledge of logical and mathematical truths" (p. 202). In his efforts to analyze the *Essay* on the basis of what is "actually said," O'Connor is forced to speculate as to what Locke would have "really meant."

The author is correct in pointing out that one of the fundamental weaknesses of the *Essay* is the failure by Locke to draw in the required "connexion between reason and experience" (p. 94). The interpretation of the *Essay* as empiricist, in either its eighteenth-century sensationalist or its contemporary restricted sense, is the product of just this failure by Locke. If we limit ourselves as nearly as possible to what is "actually said," we seem forced to recognize that the empiricism which bulks large in the total structure of the *Essay*, is by no means the key to interpreting the entire theory of knowledge offered by Locke. To assume that Locke was moving in the direction philosophy took under Berkeley, Hume, and twentieth-century British philosophers may be arguable on the level of "really meant," but such is not what Locke "actually said." The postulate of substance which, as O'Connor

correctly points out, "is 'obscure' and 'confused' because it is not given to us in sensation or reflection and never could be" (p. 79), is one of the more outstanding examples of a rationalist postulate consciously invoked by Locke. Nor did he relinquish his hold upon it while under attack from Stillingfleet. The concept of thinghood as involving a real but unknown essence was said by Locke to be necessary for both knowledge and ontology. Locke's insistence upon interpreting causality as involving a necessary relation is another example of a nonempirical ingredient in his theory of knowledge. Similarly, it is grossly anachronistic to say that in the doctrine of personal identity, Locke is "for the most part, merely describing the linguistic rules we follow when we use the words 'identity' and 'identical' " (p. 117-118). That Locke had his eye upon the practical uses of this problem are witnessed by his exchange with Molyneux concerning the legal tests for personal identity; but that he was also aware of and concerned with the ontological doctrine of the personal identity of an immaterial substance is indicated by his references to the controversies over immortality and thinking matter, as well as to that of the resurrection of the body.

Locke was writing from within a religious context which was significant to him. The ontological solutions of his contemporaries did not always satisfy him; but, judging from his written word, he was not trying to replace metaphysics by a strict empiricism. Reason and experience, rationalism and empiricism, were intermixed in the *Essay*, although it seems historically true to say that Locke's influence upon his successors was primarily to direct them to empiricism. Locke may have been the initiator of a point of view, later abstracted from its original context and developed into a radical empiricism; but it is inaccurate to keep on insisting that the *Essay* presents this point of view overclouded by lapses into rationalism. From O'Connor's point of view, Locke's greatest achievement was "to establish the fundamental importance of the empirical element in knowledge" (p. 219), but from Locke's own point of view, his importance lies in the attempt to bring out the relations between the empirical and rationalist elements of knowledge. It has proved to his own detriment that he did not clarify this relation explicitly and designate this as his main objective. But on the level of "actually said," the two elements are clearly present throughout the *Essay*. It may indicate the continued shallowness of much of contemporary philosophy that only the empirical side of Locke's philosophy is thought worthy of attention. In this and many other respects, O'Connor's Penguin *Locke* is more

suitable as a guide to contemporary empiricism than it is as a clarification of the philosophy of Locke.

JOHN W. YOLTON

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*BERTRAND RUSSELL'S CONSTRUCTION OF THE EXTERNAL WORLD.* By CHARLES A. FRITZ, JR. New York, The Humanities Press Inc., 1952. Pp. 243. $4.50.

The purpose of this book is to give a brief account of Russell's analysis of the problem of our knowledge of the external world and the employment of the method of constructions in that analysis. To achieve this, Fritz traces the development of Russell's method in his work in mathematical logic. The book is mainly expository, but it does indulge in some evaluation and criticism. It takes only passing notice of views bearing on Russell's, from the sharp debates of recent years. It does not attempt to assess Russell's place in the history of philosophy beyond stating that his position among the first rank of contemporary philosophers is secure. There are five chapters. Chapter I is a brief history of Russell's philosophy. Chapter II illustrates the method of logical constructions as applied to numbers, descriptions, and classes. In the next two chapters, the problem Russell finds in our knowledge of the external world and his solution to it are presented. The solution is found to be wanting, on the ground that Russell's procedure is essentially circular. Chapter V is devoted to a discussion of the characteristics of Russell's method. Having decided that Russell's constructions fail to "perform the task that Russell sets for them" (p. 223), Fritz accordingly devotes four pages to proposing an "alternative analysis of knowledge," which turns out to be an alternative account of the data for constructions.

In the light of the purpose of this book, the topics covered are well chosen with the exception of Part IV of Chapter IV which deals with the postulates of scientific inference. Fritz's book, as its title indicates, deals with the construction of the external world, not with inferences to it. Russell's *Human Knowledge* (1948), is not a "constructionist" work, and should be outside Fritz's province. It is also questionable whether Fritz improves his treatment of the topics covered by trying to account for the many later refinements Russell adds to his earlier constructions. The prolific output of one such as Russell is liable to cause an embarrassment of riches. The sequence of the presentation is also good, both for reasons connected with the development of

method and because it corresponds roughly with the historical sequence. However, it is a pity that the reader must wait till the end of the book to learn by description what the method of constructions is. Fritz says that Russell's early writings in logic gradually make clear a "new principle by which more general philosophical problems could be attacked" (p. 8). Doubtless this is the reason for devoting a fifth of the book to the construction of numbers, descriptions, and classes. The reader may ask, after viewing these first illustrations of method, what are the ingredients of the new principle which has been used here. A brief description of the procedure is needed at this stage. It is doubtful whether this desideratum is properly made good in Fritz's final chapter. The reader must rely on his own powers in order to discover how such apparently divergent analyses as those of the "thing" of common sense, points of space, instants of time, descriptions and classes, manifest the one procedure.

We are told that the definition of cardinal number is "one of Russell's best known accomplishments" (p. 31), yet there is nothing in the meta-analysis to indicate why it should be. That the definition of the cardinal number of a class as the class of all classes similar to the given class suggests a "blind and wilful" paradox, opposed to common sense, is not noticed by Fritz. He is inclined to believe that the definition is adequate and that it conforms with common usage. The suggestion of paradox stems from the application of the principle of abstraction, a principle whose meaning is missed in the present book. To Fritz's credit is his attempt to explain its relevance to the analysis of cardinal number, because when Russell first set up his definition, (*Principles of Mathematics*, sec. 111), he used it without mentioning it. In later definitions in the same book, for example, those of transfinite cardinals, irrationals, magnitude, and ordinals, the principle is both used and mentioned. Fritz confuses two kinds of definitions: definition by abstraction, and definition with the help of the principle of abstraction, and hence wonders whether Russell means that the principle should be dispensed with. He asserts that Russell "definitely abandons" it after 1903 (p. 34). This is in error. Peano's definition by abstraction of cardinal number keeps the abstraction of the common property. That is why Russell rejected it. Russell's principle, described by him in 1914 as "the principle which dispenses with abstraction" enabled him to dispense with the common property and to "rest content" with the class. It is irrelevant here to notice that Russell's principle turns out to be merely a schema for setting up his definitions, and that the class it substitutes for the common property turns out to

be an abstraction equally suspect, for the fact remains that the principle continued to have a "very wide application" in Russell's philosophy for many years, being used by him as lately as in 1948.

Fritz's account of Russell's theory of descriptions and of Russell's no-class theory is brief and clear. He finds these theories adequate, but there are some discrepancies between his presentation and Russell's. For example, he says that the phrase "the inhabitant of New York" is not a definite description because "there is no such unique object." Russell calls "the inhabitant of London" a definite description although it does not, in fact, describe any definite individual. Again, Fritz says that an adequate theory of descriptions must explain "their distinguishing difference from proper names" (p. 49). He admits that this distinction is not always simple. Appearances are deceiving. The name "Homer" is really a description. "New York," frequently used as a name, may be used as a description. Fritz draws on Russell's epistemological theory of "knowledge by acquaintance," and asserts that, for Russell, proper names "were only applicable to things with which we were acquainted" (p. 66). Once we appeal to this theory, we are led inevitably to the view that *nominari est percipi*. But since there will always be a struggle (judging from contemporary debates) to decide what is *percipi*, and since any criteria set up for distinguishing between proper names and descriptions are bound to be tenuous, Fritz might profitably have abstained from emphasizing this distinction. Though this solution would entail the proscription of proper names, it seems likely that any epistemological theory, including Russell's own, leaves Russell's theory of descriptions unaffected.

In his account of Russell's construction of material objects and the entities of physics, Fritz draws on all Russell's important works of the period 1914-1948. This is a pity because it tends to breed confusion rather than clarity in the mind of the reader. Russell's views vacillate and oscillate between various minor positions so much that one could wish Fritz had confined his account to Russell's "classical period." Little, except repetition, would be lost thereby. Much might be gained. Russell's construction of the external world appears in all its main bearings in the works of 1914-1915 when he was most self-conscious of method. In assessing Russell's method and its results, it would seem that if they fail in 1914-1915 they do not succeed in 1927. Fritz admits that in the later period, "The technique of constructions is essentially the same as in the earlier period" (p. 142). He concludes that Russell's "construction of points and other scientific entities does not solve Russell's problem" (p. 188), and he finds it "somewhat

difficult to discover what has been gained by them." His reason, repeated often, is that "the inclusion of unperceived events in constructions makes Russell's result essentially circular" (p. 177). If this criticism is sound, it demolishes Russell's constructions at the inception as well as at the end of his constructionist period, for in January, 1914, he included as data such inferred entities as the sense-data of other people and sensibilia. The burden of Fritz's objection then would be that Russell is not a solipsist, an ideal to which Russell has never attained. Fritz would modify Russell's account of hard data so as to "find beliefs which possess more nearly the characteristics of non-inferred beliefs than those of Russell's examples" (p. 226), expressed, for instance, as "this looks brown to me." This "alternative analysis of knowledge" is barely developed here.

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*THE LOGIC OF PRAGMATISM*. An Examination of John Dewey's Logic. By H. S. THAYER. New York, Humanities Press, 1952. Pp. 222. $4.00.

This book has all the earmarks of being a doctoral dissertation, with many of the defects characteristic of such works. There is, for example, a superfluity of introductions and summaries. In addition, it appears to have been published without benefit of revision, editing, or even proofreading. The book is splattered with misprints. Though most of them are harmless, there are places where whole lines or phrases are left out, with consequent obliteration of meaning (pp. 74, 80, 86, and 144). Moreover, the style is awkward and immature; grammatical errors are not infrequent.

The first chapter is intended to provide an explanation and clarification of the concepts, basic in Dewey's thought, of nature and experience. The second chapter sets forth Dewey's view of the relations between common sense and science, as well as the main outlines of "the pattern of inquiry." The third chapter, to which the others are preliminary, makes up the bulk of the book, and is devoted to a critical examination of three fundamental features of Dewey's theory of inquiry: the notion of an "indeterminate situation," the theory of propositions as merely "intermediate and instrumental," and the view that "inquiry effects existential transformation and reconstruction of the material with which it deals." On the basis of the arguments advanced, a reformulation of some of these points is suggested.

The general tenor of the work is on the whole sympathetic to what Dewey was trying to do. But it does not succeed in clarifying what it sets out to clarify. For example, we read: "Nature, Dewey writes, is an affair of affairs. That is to say, nature is a kind of moving and all-inclusive history of a vast multitude of histories. Every natural thing has its own history, its own quality as shaped in the interactive sequential continuum of all things . . ." (p. 15). This is hardly in keeping with the "clarity" and "rigor" alluded to on the opening page (vii). And it does not help matters to report that one of Dewey's commentators has commented that "Nature is an inclusive history of multitudinous ongoing histories, the comprehensive interactive continuum consequent upon the interactivities of an indefinite number of general kinds" (p. 17). This is, unfortunately, not an isolated instance. The author is too often a victim of the fallacy of clarification by quotation. After recognizing (p. 19) that Dewey's use of the term "experience" is obscure and puzzling, and illustrating this by presenting some of the various things Dewey has said about experience, he attempts to clarify the term merely by paraphrasing and providing further quotations. No rules are provided for distinguishing "experience" (or an experience) from what is not to count as "experience." Instead, we are told that "experience" designates the interaction of an organism with its environment, that experience makes claims (p. 21), is "ongoing . . . an affair in nature" (p. 22), is a method (p. 23), provides means and techniques (p. 24), and so on. To quote Dewey in order to explain Dewey is, in most cases, simply to compound obscurity.

Again, in his discussion of "indeterminate situation," the author proposes to clarify the notion by providing an "empirical" criterion for it (pp. 73, 84). But all that he actually does is distinguish between "behavioral" terms like "doubtful" and "troubled," which are applicable to the organism in an indeterminate situation, and "physical" terms like "unsettled," "not hanging together," which are applicable to physical characteristics of the situation (pp. 81-82). This not only fails to provide an empirical criterion for determining whether or not a situation is indeterminate, it fails to bring out what Dewey means by the term.

By far the longest section of the book is devoted to a criticism of Dewey's theory of propositions, and of this the most space is given to arguments attempting to refute the view that since propositions are instrumental in inquiry they cannot be said to be true or false (pp. 119-161). One of these arguments is to the effect that although propositions may be means in inquiry and hence have the properties of means,

it does not follow that they are not true or false. This is a simple logical blunder. Dewey argues, as the author recognizes, that since propositions are means in inquiry, and means are neither true nor false, propositions are neither true nor false (in the sense that the terms are inapplicable to them) (pp. 121-127). This argument is perfectly valid. It is a simple syllogism in *EAE*, 1st figure. The author's failure to see this arises from confusing this argument, which involves the statement that propositions are means and are thus analogous to looms and hammers, with the different argument that propositions are analogous to hammers and are not true or false because hammers are not (pp. 125-127). This latter argument is not Dewey's. Dewey does not claim that propositions are hammers. Nor does he claim that propositions are analogous to tools. He claims that propositions *are* tools, and are in this way analogous to hammers. His argument is undoubtedly unsound, but it is not invalid. The author's other arguments on this point are on this same level. The suggestion that warranted assertions (judgments) are propositions about propositions, to the effect either that they are true or that they are false (pp. 153-159), not only confuses irrevocably Dewey's intended distinction between judgments and propositions, but completely ignores the way in which Dewey ties up knowledge (which he defines as warranted assertibility) with inquiry. For Dewey, knowledge has no meaning apart from inquiry; a judgment is warrantably assertible, something can be known, only *as* the conclusion or settlement of an inquiry. Hence, on Dewey's view, though the (true) conclusions of some inquiries may be used in resolving others, *as so employed* they are not true or warrantably assertible.

Dewey's insistence that propositions are mere means in inquiry and consequently neither true nor false can be made more plausible by interpreting him as speaking, not about propositions, but about *hypotheses*. In its use *as a hypothesis* a proposition is not true or false. As so employed, it is either serviceable or unserviceable, and it is serviceable (*valid*) only if it contributes to the solution of a problem. This view of Dewey's is closely tied up with his view that there can be no "empirical certainty" (see Dewey's *Logic*, p. 226), and the distinction he makes between propositions and "social communications," which may record facts, but are not propositions "unless a question has arisen" (*Ibid.*, pp. 172-173, 284-285). But Mr. Thayer does not attempt to make Dewey's view plausible, or examine its interconnections within Dewey's logical theory. He holds that though "there are important historical reasons which explain why Dewey holds that propositions do not possess the properties of truth or falsehood," they "are not

directly relevant to the present study" (p. 11), and that "the view that propositions are true or false does not . . . have any serious consequences for the other parts of Dewey's theory" (p. 74). This is a serious mistake. If this were the case, no sense could be made of the emphasis Dewey placed on this point.

The same superficiality characterizes the whole work. The author seems to feel that Dewey's view that "all inquiry contains a practical factor," and effects "existential transformation and reconstruction of the material with which it deals," can only be an induction from observations of some inquiries, that "it is a matter to be determined statistically" (pp. 168, 196); that if it is not it ought to be, since Dewey's philosophy is intended to be an empirical one; and that what Dewey really ought to have said is that inquiries *probably* have this characteristic (p. 169). Dewey has certainly made it abundantly clear that he would not *call* anything an inquiry if it lacked this characteristic. And his reasons for this are to be found in his "naturalistic postulate" of "continuity" between the biological and the logical, his view that "organic interaction *becomes* inquiry" when certain conditions are met (*Logic*, pp. 25, 34, 107), and his use of the description of what happens when an organism is hungry as a model for the interpretation of scientific procedures (*Ibid.*, p. 27). They are also to be found in the fact that Dewey regards his account of inquiry as establishing the proposition that "*social* inquiry . . . involves the necessity of operations which existentially modify actual conditions," for "this lesson is the logical import of the experimental method" (*Ibid.*, p. 493). Hence an adequate examination of Dewey's view involves an examination of these reasons. To examine the view in this way is to examine it in its context. This would be to *apply* the "genetic-functional" method (p. 33), instead of merely paying lip service to it. (In this connection, the question might well be raised whether Dewey's philosophy can officially recognize the value of preventive as contrasted with remedial medicine, or can even make out the difference between them.) But the present book does not attempt to do this.

The claim is made on the dust jacket that this book is a "careful analysis," "a brilliant study," and "a valuable contribution." It is, unfortunately, none of these things.

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*THE CONTINUUM OF INDUCTIVE METHODS.* By RUDOLF CARNAP. Chicago, The University of Chicago Press, 1952. Pp. vi, 92. $3.50.

In this book Professor Carnap offers details to substantiate the claims in his *Logical Foundations of Probability* for his views on the character of inductive inference. In its exposition this book is independent of his earlier writings, but readers not already familiar with his methods and terminology would find it helpful to have the earlier volume at hand. One needs to understand the method of setting up an artificial language with the structure of *Principia Mathematica*, together with descriptive predicates. Carnap used this as early as *Der logische Aufbau der Welt* (Berlin, 1928), *Abriss der Logistik* (Vienna, 1929), and *Logical Syntax of Language* (London and New York, 1937), though the most accessible introduction to it is *Foundations of Logic and Mathematics* (Chicago 1939). At the same time the reader not expert and familiar with the use of statistical methods will want to refer frequently to some standard works for comparison and testing of Carnap's proposals. The reviewer recommends Allan Edwards, *Statistical Analysis* (New York, Rinehart & Co., 1946), G. U. Yule and M. G. Kendall, *An Introduction to the Theory of Statistics* (London, C. Griffin & Co., 1940), and J. Neyman, *First Course in Probability and Statistics* (New York, Holt, 1950).

In the *Logical Foundations of Probability* Carnap claimed that a precise explication in an artificial language of the degree of confirmation given one statement by another will disclose an underlying common pattern beneath the apparent multiplicity of considerations discussed in the usual treatments of statistics. Thus he was distressed to find, for example, that "any question concerning the probability of a parameter value in the population with respect to given evidence concerning an observed sample is regarded as meaningless . . . in contemporary mathematical statistics" (*Log. Found. of Prob.*, p. 517). (See, *e.g.*, Edwards, *op. cit.*, pp. 159-160.) While Carnap admits that Fisher's method of maximum likelihood is "a general method at least for a large class of problems of estimation" (*Log. Found. of Prob.*, p. 515), he complains that most statistical methods are not general. He claims that in contrast to these methods his system will show a common basis for the various "methods developed by Fisher, Neyman, Pearson, and Wald . . . for estimating parameter values and testing hypotheses" (*Ibid.*, p. 518). There will be such a common basis, because "if an investigation concerning a given universe of discourse (say, the universe of atoms in the physical world or that of observable physical events . . .) studies

inductive inferences with various bodies of possible evidence and various forms of hypotheses or estimates of relative frequency, then this whole investigation refers to one fixed set of relevant properties of the individuals in question" (*Continuum*, p. 48). This one fixed set of relevant properties will guide the choice of primitive predicates for the artificial language.

Carnap claims that his system makes plain that "only one fundamental decision is required" (*Log. Found. of Prob.*, p. 514). From then on the reasoning is deductive. This is rather surprising, for he had begun by identifying inductive inferences as precisely those inferences which are not deductive (p. 3). Later, however, he repeatedly and, I believe, correctly, ascribes to his system results which are deductively certain, provided, of course, we have already accepted the system (see pp. 59, 60, 76, 78). What Carnap presents us with is a family of axiom-systems. By a decision on the properties to be taken as relevant to our investigation we select one of these. With this axiom-system we may *deduce* a number for every pair of statements. This number will serve as a measure of the degree of confidence which the acceptance of one statement leads us to put in the other, when we have judged the matter reasonably. (This is Carnap's explication of "reasonableness.") We get the clinching evidence that it is a deductive system he offers, when we find that he specifies that "for each method of confirmation or of estimation of relative frequency, there is a mathematical function $G$ which characterizes that method completely" (p. 22).

Part I of this work develops a solution to the problem he has set himself. He claims that in practically all inductive inferences the conclusion is determined by attention to one or both of two kinds of facts. In the first place, the observed frequency of a characteristic in question is taken as determining to some extent what frequency we shall expect elsewhere. This Carnap calls the empirical factor. Secondly, our beliefs are determined by the number of possible kinds of events. This Carnap calls the logical factor (p. 24). In his reconstruction he uses lower case lambda for the logical factor and the numerical value assigned to it indicates that that factor is given weight equivalent to that number of individuals (p. 28). Carnap believes that the weight of the observations is so standardized that the weight of the logical factor will characterize the function $G$ and so each of all possible inductive methods can be transcribed in his artificial language merely by specifying $G$.

He classifies existing methods according to this scheme. Anyone who

sticks to the observed frequency follows the method in which lambda equals zero. If any one deviates from believing that the observed frequency will continue, he does so, as in a dice game, because he thinks the value of his estimate should be influenced by the fact that there are six possible throws (p. 26). Laplace's rule is classified as the method for which lambda equals two (p. 35). The method of Keynes, Peirce, and Wittgenstein is a method which refuses to "give any regard . . . to the results of observations, in making expectations or estimations" (p. 38). Hence it is recognizable as the method for which lambda equals infinity. It is, then, the values of lambda which constitute the continuum of inductive methods which serves to title this book (p. 55). The "systematic survey of all possible inductive methods" will assign to each of them numbers out of the continuum of real numbers from 0 to 1.

Part II discusses the straight rule of estimation of a parameter value. This consists in taking the mean of the samples or the mean of the means as the value in the population from which the samples were taken. (For details of a statistician's exposition see Edwards, *op. cit.*, pp. 159-160, and Yule and Kendall, *op. cit.*, p. 379 and pp. 434-435.) Carnap admits that this method has "great simplicity," but complains that "it is bought at the price of neglecting the logical factor" (p. 43). He goes on to explain the price he thinks is paid. His argument starts with the claim that "the closeness to the *actual value*" is "suitable as a measure of success" of a method of estimation (p. 61). The closeness will be measured by the mean of the sum of the squares of the numerical difference between the means of the samples and the actual value (p. 61), that is, the mean square deviation of the estimates with reference to the actual value, which Carnap calls German double-you superscript two.

Now in choosing this as a measure Carnap is differing from statisticians. It is obvious why they have not used this measure. Since the actual value is usually never known, they would never be able to apply such a measure. What Carnap does, then, is to describe a possible universe. Here his artificial language comes into play. A possible universe is represented by what he calls a state-description, which consists of a statement assigning some *Q*-property to each individual acknowledged by a name in his language. (A *Q*-property is defined by "a conjunction in which every primitive predicate occurs either unnegated or negated" [p. 10 and *Log. Found. of Prob.*, sect. 31].) The actual value in the possible universe will be the relative frequency of a *Q*-property in the state-description, i.e., the relative number of indi-

viduals to which it is assigned. Hence, he is interested in "the mean square error of the estimates for all *Q*-properties" (p. 65), which he designates as German double-you superscript two subscript italic capital queue.

Carnap computes the mean square error within such a model universe, given various samples and various hypotheses about the actual value. He takes it as a point in favor of his representation of inductive inference that he can specify a correction-factor (in the form of a value for lambda) that will yield the smallest mean square error for all possible samples of a given size from a population with any given actual value of the relative frequency. This he calls the optimum inductive method, lambda superscript capital delta. What use can be made of lambda superscript capital delta, considering that we rarely know the actual value and that the very purpose of the statistics of estimation is for use when we do *not* know it? This question Carnap answers by offering a method that will show a minimum value for lambda for a population of which we know only a sample, providing, of course, that we have picked a language with a definite number of primitive properties and so of *Q*-properties. "Thus we can specify an estimate-function . . . which is more successful in the unknown universe . . . in the sense of having a smaller German double-you superscript two subscript italic capital queue than . . . the straight rule" (p. 77). Yet it does not seem that any very high price is paid by neglecting this lambda, the so-called logical factor, for Carnap's whole case against the straight rule hangs on the use of the mean square error from the actual value as the measure of suitability of a method of estimation. This is not, however, a useful measure for a statistician, for even with Carnap's correction factor the estimate derived from a small sample is admittedly so far from the actual value in most cases that the estimate is worthless. For large samples, Carnap's correction factor is negligibly small, on his own admission (p. 43 and *Log. Found. of Prob.*, p. 245).

Part I of the book makes clear that Carnap has had two purposes wound up together. The broader purpose is to frame a formal language system within which the portraits of different methods of inductive inference can be drawn. It will need to have points at which to sketch in all of the various items that have in one method or another been used in arriving at an estimate. The system Carnap has constructed has its merits for this impartial purpose, but these tend to be obscured from the reader by his clumsy manner of exposition. For as he expounded the system in *Logical Foundations of Probability*, he intermingled

arguments and dicta favoring one inductive method over the rest. He also seemed to think that the dispute about the frequency interpretation of probability is somehow settled by his system. In this book he recognizes more diversity of opinion and is less insistent on arbitrating the disputes with a show of finality.

The special value of his system is that his lambda, the logical factor, allows one to formalize inferences in which the investigator determined his estimate by something other than the actually observed frequency. This allows us to discuss whether any good purpose is served by so doing, but it does not constitute any proof of a notion of probability different from relative frequency. After all what influences the decision may be a belief about the relative frequency. (See my "Professor Carnap and Probability" in *Philosophy of Science*, 19 [1952] pp. 170-177.)

The issue turns on a conception of philosophy. Carnap has expressed the task of philosophy as that of constructing a formal system. That, as I observed in a review of a set of papers by Reichenbach, Hempel, and Bergmann (*Journal of Symbolic Logic*, 17 [1952], pp. 133-135), is no longer a satisfactory account of the whole of the matter. If a philosopher chooses to use a formalized language in his philosophizing, there are at least three stages on which he may be called to account. There is the inquiry that probes and formulates on the one hand the philosophical problems and puzzles to be dealt with, and, on the other, the purposes controlling their resolution. There is the construction of the formal system. There is nonformal discourse about the system, showing step by step how what we say in a nonformal language like English can be reconstructed in a formal language, and explaining the importance of the particular reconstruction accomplished in terms of problems and purposes with which we began. Carnap has come to recognize this latter phase to some extent. (See his "Empiricism, Semantics, and Ontology," *Revue internationale de philosophie*, 4 [1950] pp. 20-40.) A great deal more discussion of Carnap's formal system for probability, however, is called for, including a detailed consideration of the interpretation he gives to the signs of his formal system. We may expect that even though the formal structure of Carnap's system should be retained, the interpretation he gives it would be altered.

WILLIAM H. HAY

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*FOUNDATIONS OF THE UNITY OF SCIENCE.* Volume II, no. 7: *Fundamentals of Concept Formation in Empirical Science.* By CARL G. HEMPEL. *International Encyclopedia of Unified Science,* I and II. Chicago, University of Chicago Press, 1952. Pp. iv, 93. $2.00.

This is a valuable book. Hempel's approach is the prevalent one of trying to reduce the methods by which empirical scientists introduce their concepts to those by which mathematicians and symbolic logicians introduce theirs. It is not surprising that this reduction can only partially be carried out, and no one could be more candid than Hempel in stating the limitations of this approach. Nevertheless, I sometimes get the feeling that he is not happy when the reduction cannot be achieved, that somehow he feels there is a job he has not succeeded in completing.

Thus Hempel begins in the traditional way by discussing *definition.* He contrasts nominal definition, which is merely the stipulation of the synonymity of a new expression with an already understood one, with so-called "real" definition, which is either an empirical statement about the properties a certain sort of thing has, or else is the analysis of the meaning of an expression already in use. In a very instructive treatment he explains how even nominal definition is not so straightforward a matter as has often been supposed. Nominal definitions are not completely arbitrary. He gives an interesting example, taken from Peano, of a definition of an arithmetical operation which would lead us into contradiction. Hempel describes nominal definition as the introduction of a new *expression* but says that it is also often convenient to describe it as the introduction of a new *concept.* With this I agree. For clearly it would be natural for us to speak of the definition of "circle" in an English Euclid as the "same" definition as that occurring in a French Euclid, or as that occurring in the original Greek. But Hempel's way of putting this point is metaphysically dangerous. He says that "We may say that a nominal definition singles out a certain concept, i.e. a non-linguistic entity such as a property, a class, a relation, a function, or the like, and for convenient reference lays down a special name for it" (p. 4). This is to fall back to the Platonic error of construing all words as proper names. Certainly a concept is not a linguistic entity. That is, it is a platitude that concepts are not words. Similarly a person's gait is not his steps. Two people who take different strides may nevertheless have the same gait. The gait is what is common to various ways of walking. It is not an ambulatory entity (i.e., a step). But is it a nonambulatory entity? A concept is a matter of

what is common to the use of expressions in different languages. Certainly a concept is not a linguistic entity (a word), but it is not a nonlinguistic entity either.

Hempel now goes on to ask: can the technical terms of empirical science be divided into (1) observation expressions and (2) expressions nominally defined (either explicitly or contextually) in terms of observation expressions? He points out that they can not. The program breaks down immediately when we come to dispositional words like "magnetic." I agree that the program breaks down, but not quite for the reason that Hempel gives. Suppose we define "*x* is magnetic at *t*" as "if, at *t*, a small iron object should be close to *x*, then that object would move towards *x*." My objection to this definition would be the quite simple one that a small iron object might be close to *x* and still not move, even though *x* was magnetic. It might be nailed down or there might be a counterbalancing magnetic field. Since there is an indefinite set of such "excuses" for its not moving we cannot modify the definition so as to make it completely watertight. Hempel's objection to the definition is a more sophisticated one: it is that the subjunctive conditional can not be "explicated" in terms of material implication. (Nor, I would add, can the ordinary "if . . . then . . ." either.) But what is the force of this objection? If we think of "if . . . then . . ." propositions as inference licenses (as Ryle does) there is nothing puzzling about conditionals: the relationship of a license to what it licenses is not one of the truth functional relations of formal logic, so why should we try to pretend that it is? Those philosophers who are beset by the supposed problem of conditionals (subjunctive or otherwise) are impelled by the praiseworthy motive of wanting to eliminate metaphysical entities, like "relations of necessary connection." But sentences can have relations which are nontruthfunctional and yet metaphysically innocuous. Consider two sentences, one of which is a rule of sentence formation, and consider the relations of "being in accordance with" and "being a breach of." No philosopher has ever thought that these relations require "explication" in terms of "not," "or," and the like. However, let us for the moment agree to construe "if p then q" as "not p or q." Then "if a small iron object is close to *x* then it moves towards *x*" has the shortcoming (over and above that which I mentioned earlier) that the definition would be satisfied if *x* was not magnetic but no small iron object was near *x*. Hempel gives an account of a method, suggested by Carnap, for overcoming this shortcoming—the method of "reduction sentences" (see pp. 25-29). A set of reduction sentences characterizes the meaning

of a dispositional word "only partially." Hempel points out that "this . . . characteristic of reduction sentences does justice to what appears to be one important characteristic of the more fruitful technical terms of science . . . their *openness of meaning*." We can always add to the possible types of situation for applying a concept by adding to our set of reduction sentences. On the other hand, it seems to me that the theory of reduction sentences does not do justice to another aspect of the "open texture" of scientific concepts: it suggests that a sentence of the form "*x* is magnetic" can be conclusively falsified simply by the observed failure to occur of a certain phenomenon. This is not so: it is theoretically open to the experimenter to think up some supplementary hypothesis which will explain the failure. My main criticism of the theory of reduction sentences remains, however, that it is not engendered by attention to the logic of science as it is in fact done by scientists, but is the child of the spurious problem of subjunctive conditionals. Hempel, in fact, gives a much better account of another class of scientific concepts on p. 32 where he talks of *theoretical constructs*,

> i.e. the often highly abstract terms used in advanced stages of scientific theory formation, such as 'mass', 'mass point', 'rigid body', 'force', . . . 'electron', 'proton', '$\psi$ function', etc. . . . Terms of this kind are not introduced by definitions or reduction chains based on observables; in fact they are not introduced by any piecemeal process of assigning meaning to them individually. Rather, the constructs used in a theory are introduced jointly, as it were, by setting up a theoretical system formulated in terms of them and by giving this system an experiential interpretation, which in turn confers empirical meaning on the theoretical constructs.

Nevertheless, can a theoretical system be given "an interpretation" in exactly the same way as a geometry can be? Is an electron no more than "a construct" in the sense in which a geometrical point is a construct? I feel some inclination to say that electrons are real things which we have discovered, and I feel no inclination to say this about a geometrical point. No doubt this is an obscure thing to say, but I am giving expression to a metaphysical conflict which I should have liked Hempel to have helped me to resolve.

The book also contains interesting remarks on operationism, with applications to the anthropological and sociological sciences (which seem to me to be largely "natural history," rather than science in the full sense), a discussion of comparative and classificatory concepts, and an excellent section on measurement, which largely follows the ideas of N. R. Campbell, though Hempel has succeeded in streamlining the treatment.

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*THE EXISTENTIALISTS.* A Critical Study. By JAMES COLLINS, Chicago, Henry Regnery Co., 1952. Pp. xiv, 268. $4.50.

If it was the author's intention to present us with a maximum of information on Existentialism in a minimum of space, we may say that he has fully succeeded. In some two hundred pages, Professor Collins gives us a detailed description of the existentialistic background (Kierkegaard, Nietzsche, Husserl), a compact survey of four of its main proponents (Sartre, Marcel, Jaspers, and Heidegger) and finally a conclusion which elaborates upon what the author calls the existential themes.

This trip from Kierkegaard on to the most recent existentialist has become traditional by now. Collins does it in an unusual way, however. His first chapter, presenting the existentialistic background, is probably the best written on the subject and at the same time the best part of the book. Kierkegaard's influence is very much emphasized, of course. His search for the "uncommon man," who will take the first steps toward a renascence of personal integrity, together with his studies of boredom, despair, and dread, have proved to be especially fertile sources for his recent followers. His severe antirationalism has suggested to the present-day existentialists other powers than reason and constitutes also for some of them, for example for Jaspers, their weakest point, namely their lack of systematization.

Nietzsche's antiegalitarianism and his defense of the individual also had a pronounced influence on the existentialists. In their criticism of science, they agreed with Nietzsche that science is not value-free, i.e., in sciences there is no search for truth for its own sake, since science itself rests upon a judgment that the scientific attitude is worthwhile and preferable to other approaches. And finally Husserl's descriptive approach and his ideas concerning intentionality presented Sartre and Heidegger with a method but also with a paradox, which never has been completely solved, namely, the conflict between individual existence and purified essence. It was, indeed, Kierkegaard's recurrent charge against Hegel that the latter leaves unclarified the relationship between the empirical and the absolute Ego. His paternal influence leaves present-day existentialists with a bitter choice between Husserl's theory of scientific rigor and the existential conditions of the individual.

In later chapters, where Collins condenses and criticizes four of the most famous existentialists, his task becomes more complex. The main products of modern existentialistic literature, such as *L'Etre et le néant*

and *Sein und Zeit* are not exactly easy reading. To summarize them may, therefore, be dangerous. Although Professor Collins shows an unusual talent for synopsis and comparative study, one wonders whether at certain moments he has not "le défaut de ses vertus" and has not condensed too much, realizing in this way what he predicts in his preface, namely, that he does "not pretend to open an easy path to understanding existentialism" (p. viii). His book is not always an easy path, indeed. And yet, there must be a way to say difficult things in simple terms. Or, if not that, at least it can be said that a summary or a paraphrase has little excuse for being, if it is less comprehensible than the original, a charge which may at times be brought fairly, in my opinion, against certain pages of the study.

In order to keep his book within a certain number of pages, the author has also adopted another method. He has insisted on certain aspects of a doctrine and dropped others, which apparently he felt to be of minor interest. Hence, certain parts of Heidegger's philosophy, such as the problem of temporality and the problem of death, are completely overlooked. Some of Sartre's most original contributions, e.g., the *Pour-soi* and the body, are not mentioned. Other aspects, however, are carefully detailed, for example, Sartre's atheistic position, which Professor Collins attacks in a very penetrating way. His own viewpoint is the Aristotelico-thomistic doctrine, which he knows thoroughly. As a matter of fact, Sartre's atheistic position is not convincing by any means and may, in his own terms, be called postulatory. And yet it remains equally true that Aristotelico-thomism has never completely elucidated the mysterious co-existence of Finite and Infinite and that the problem of human freedom facing its Creator has been a *crux theologorum* even for the most brilliant scholastic theologians —Bannez, Molina, Billot, and others. All in all, the author may appear to be somewhat severe on Sartre. There is in the atheist Sartre, it seems to us, a Franciscan attitude towards the poor, and a monklike hatred of the body and the flesh, a ruthless insight into the vanity of all human behavior, and an accurate description of man's aspirations towards the Absolute; all of which aspects may, from a certain standpoint, appear to be admirable qualities.

We are not sure, either, whether Professor Collins has correctly interpreted Sartre in discussing the intentional activity of consciousness (For-itself). He writes: "The determinate traits are due *exclusively* to the work of consciousness. . . . The transphenomenal being of the object owes its multiple differentiations, meanings, and essential structures *entirely* to the projects of subjectivity" (p. 57; our italics). We wonder

whether the author is aware that in Sartre's doctrine the notion of "quality" is something *objective* (as it is not in Heidegger; at least not in the earlier Heidegger). For Sartre, yellow is not a subjective mode of apprehension but belongs to the lemon. On that point Sartre is explicit (see *L'Etre et le néant* [Paris, 1949], p. 235 ff), and leaves no doubt whatsoever.

One of the most stimulating passages in Collins' book is the examination of Heidegger's most recent philosophical evolution. Even though the author does seem to be brief in his comment on *Sein und Zeit*, he is remarkably well documented on Heidegger's actual position, insofar, of course, as this position is known. It appears, at present, that Heidegger, whom most of his interpreters have considered an atheistic existentialist, is slowly moving toward a philosophical position which claims that God can neither be approached nor rejected. Heidegger, *qua* philosopher, makes no decision about theism, but maintains that his fundamental ontology opens up the dimension within which the problem of theism can be raised. The recovery of the meaning of being is a *philosophical* question, believes Heidegger. As far as the search for the divinity and the clarification of the meaning of "God" goes, however, it seems that Heidegger may now believe that the study of the *mystics* may provide a valuable means, not unsimilar to the Bergsonian solution in *Les Deux Sources*.

In a synoptic view, which concludes the book, Professor Collins develops the themes he considers characteristic of the existentialistic doctrine in general. First of all, the existentialists "philosophize out of need of their redemption" (Fichte). They close the gap between life and intelligence, hence defy all classification and are most antisystematic. Furthermore, their approach is descriptive. It attacks the position of the human being facing the world, and it is from the conjunction of man and the world that the existentialistic dialectic invariably takes its rise. The existentialist does not care alone for the individual, however; one's fellow men belong to the zone of his exploration as well. And finally the existentialist, whether theist or atheist, is very much taken by the nature of a possible God and by a drive towards the Infinite.

Taking the traits in conjunction, one may say that the author has given us a genuine picture of present-day existentialism. On the single point of antisystematization, I differ somewhat with Collins in these conclusions: such a charge does not fit easily into the frame of Heidegger's and Sartre's stand, for both the latter have attempted to

systematize their views and have tried to make some kind of objective and universal ontology out of their subjectivistic view.

Professor Collins has done a very useful job. His book contains an amazing richness of information concerning the existentialistic doctrine in its most recent forms. It is highly condensed, however, and may require from the beginner some re-reading—re-reading which, we hasten to point out, will be very rewarding.

WILFRED DESEN

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*TIME AND ETERNITY.* An Essay in the Philosophy of Religion. By W. T. STACE. Princeton, New Jersey, Princeton University Press, 1952. Pp. vii, 166. $3.00.

*RELIGION AND THE MODERN MIND.* By W. T. STACE. Philadelphia, J. B. Lippincott Company, 1952. Pp. 285. $3.75.

It is well to read these books together because the problem they attack is a tough one and the difference in approach makes the argument somewhat easier to follow. The first one, *Time and Eternity*, is in many ways as baffling as the title suggests it would be. It makes a frontal assault on the question of the mystical experience, arguing that naturalism and mysticism, or atheism and theism, are two sides of one truth, and must both be accepted, just as God is both being and nonbeing, the eternal Yea, and the (temporal?) Nay. God is beyond concepts and is known in an intuitive experience where distinctions are transcended. The mystic lives in two dimensions, and his response must ultimately be that of silence before a God of whom it can be said that He is not, as truly as that He is.

The other book, *Religion and the Modern Mind*, is somewhat easier going because much of it is taken up with a straightforward account of the rise of science and its destructive influence on the belief in a moral world order. Naturalism, says Professor Stace, led psychologically, if not logically, to subjectivism and then to relativism. Naturalism and subjectivism he himself accepts, but relativism he rejects. There are moral ideas that are true for all men and there are both secular and religious grounds for holding this. On the secular side we can see three common human purposes that are sources of universal rules of conduct. They are the purposes of self-preservation, physical health, and happiness, requiring, respectively, rules of prudence, of

medicine, and of morality. Even on a naturalistic basis the rule of love ought to be followed, since a selfish life is not a happy one.

Professor Stace works this out at considerable length and in an interesting way after a detailed study of what teleology means, how the belief in it was lost, and what attempts were made to reinstate it, as in post-Kantian idealism and the romantic movement. He then turns to the religious reason for rejecting relativism and finds, with Bergson, that the confidence of the mystics in the power of love and its authority for life is something that we can share.

The author is as emphatic in this book as in the other that what we confront here is a paradox if not an actual contradiction. So far as the intellect is concerned the two realms of time and eternity cannot seem to make their peace with each other. But this book offers more hints of a possible reconciliation, using such illustrations as the two worlds of Kant or the modern use of "frames of reference" where the sequence of one may apparently be reversed in the other. The illustrations are admittedly inadequate but the author finds them suggestive.

That the total drift of the argument is toward the unintelligibility of mysticism, and with it religion, is hard to deny. If the mystic truly goes "beyond distinctions" how can we really say where he goes or what he finds? Nor does it seem that the author can really make a case for the ethical implications of the experience by showing that because it is beyond the distinctions of "you" and "me" it is free from egotism and characterized by love. If it is true that love flows from it, then something was there which was not beyond distinctions. If, furthermore, as the author rightly claims, the mystics of all religions demonstrate a surprising unanimity, then again their message does not transcend all intelligibility, but is classifiable and capable of being known. It appears to me that we must agree with the author that the mystics have something to say that ought to be of special significance to us in our present confused mood, but that the way to find out what it means is to build on such intelligibility as it has. Instead of taking literally the mystics' statement that they have broken all connecting threads, should we not pick up the threads we can see? After all, the mystics have consistently returned from the mount of vision with something to do even if they found it hard to know what to say. The fact that they expressed themselves so well in action is what makes us so eager to go further in deciphering their words.

J. S. BIXLER

*Colby College*

*GEORGES SOREL: PROPHET WITHOUT HONOR.* A Study in Anti-intellectualism. By RICHARD HUMPHREY. Cambridge, Mass., Harvard University Press, 1951. Pp. vii, 246. $4.00.

*THE GENESIS OF GEORGES SOREL.* An Account of His Formative Period followed by a Study of His Influence. By JAMES H. MEISEL. Ann Arbor, Mich., The George Wahr Publishing Co., 1951. Pp. 320. $6.50.

These two studies differ in approach and scope, but agree in essential results. Professor Humphrey, a historian, ranges back to the eighteenth and on to the twentieth century to locate his subject in the stream of Western thought, emphasizing sociology and psychology as well as economic and political theory. The book alternates between quotation or paraphrase, and passages in which the author interprets Sorel, often by reference to better known figures, such as Bergson, Marx, and Freud. Many of these comparisons are significant and well documented; but Freudian terms are overworked in more than one passage, and in the conclusion the reader is startled at the sudden assumption of an identity between the violence with which Sorel was preoccupied in his only famous book and the violence represented by the atomic bomb.

Professor Meisel, a political scientist with a European background, is also primarily concerned with the present significance of Sorel, but he prepares to assess this through a much more exhaustive presentation. In pursuance of the purpose indicated in his title, he not only goes through each of the major works (giving a complete breakdown of the often tortuous publishing history of each, and indicating its relation to *Reflections on Violence*), but also follows the development of Sorel's mind and interests in several chapters based on his correspondence. The intricacies of Sorel's literary and political affiliations and falling-outs are followed meticulously. The book is unfortunately marred by a poor job of editing, but not so seriously as to endanger the reader's comprehension, or the accuracy of statement and documentation. There is a selective bibliography of twelve pages.

Despite their differences, Humphrey and Meisel agree in showing that Sorel's adherence to syndicalism dominated only one, comparatively brief period of his life, and that even then he viewed syndicalism pragmatically, rather than as an end in itself. The end he was seeking, and that which alone gives unity to his chaotic and often contradictory interests and loyalties, was a new stiffening of the morality of society, with the proletariat, the producers, appearing as the most likely agent

of such a revival. Always historically minded, he looked in the past for instructive examples of societies well adjusted and ill, and was especially struck by the spectacle of the early Christians working underground in decadent Rome. So, he thought, should the proletariat, under the influence of the revitalizing and energizing myth of the general strike, arrest the decline of the West by keeping the capitalists on the defensive, purifying family morals, and teaching society the realism which the workman learns from respect for his tools and their limitations.

Both authors offer analyses of Sorel's anti-intellectualism, of the precise sort of "democracy" to which he was adamantly opposed, and of his brand of Marxism. They also make good cases against viewing him as simply a disciple of Nietzsche and Marx, or as the father of fascism and national socialism.

ANNA MARGARET WEBER

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*INTRODUCCION A LA METAFISICA.* By ANGEL GONZALEZ ALVAREZ. Mendoza, Argentina, Universidad Nacional de Cuyo, 1951. Pp. 393.

This introduction to scholastic metaphysics, which has the *imprimatur* of the Bishop of Mendoza, is divided into four parts which deal with the concept, possibility, method, and sources of metaphysics. Part I describes its historical development and maintains that the intuitive approach imputed to Occam (101), Jolivet, and Maritain (103), is misleading, since it makes the conclusions of Kant inevitable (104). The true metaphysical path is found in triple abstraction of the formal type as distinguished from total abstraction by John of St. Thomas and Cajetan.

Materially, metaphysics deals with actual and possible objects (p. 135). Formally, it treats of being *qua* being reached by the third degree of formal abstraction and on a level proper to that degree (p. 140). From logic and sacred theology, also on the same level, it differs specifically (pp. 148-49), though theology also has a "different mode of immateriality" (p. 151). Studies of the angels (intelligences), separate souls, attributes of the author of nature are excluded from metaphysics (pp. 174-75, 177, 180-81; cf. 155). With these exclusions, metaphysics has not merely the unity of a genus including three different sciences, ontology, natural theology, and criticism, but a specific

and formal unity, because the three parts of the discipline "agree in the same mode of definition consequent upon the level of immateriality reached" (pp. 195-96).

Part II advances scholastic reasons against positions which deny the possibility of metaphysics and those which offer "insufficient realizations" thereof (p. 236). Part III discusses the method of metaphysical investigation and instruction. The method of investigation is inductive-deductive, moving from the sensible by abstraction to being *qua* being, but ending in the intellect with no ensuing resolution of its judgments in sensible experience (p. 277). The historical survey of teaching methods and devices is more informative than the discussion of the medium of instruction is helpful, since expected emphasis is not given to the mastery of triple abstraction. Part IV finds psychological sources for metaphysical investigation in sense, reason, and faith; materials for criticism in empiricism, rationalism, and fideism; and contains thirty-seven pages of bibliography and some remarks on the function of chairs and seminaries in the unclosed investigation of metaphysics. There is an index of names, an index of texts translated in Part I, and a table of contents.

Although the conclusions of this minutely outlined and technical treatise can be duly assessed only by experts, a few remarks may be made within the limits available. Notwithstanding the author's warning about exclusivism in philosophy (p. 210), he has himself excluded many definitions of metaphysics (pp. 135, 97), some subject-matters, and all alternative conceptions of philosophy. Exclusion of "intellectual intuition" is the chief purpose of his exclusive emphasis on triple abstraction. A certain sharp criticism of the abstractive divestment in Maritain's *A Preface to Metaphysics*, p. 83, emphasizes the care required in making this abstraction. When Maritain speaks of "existence in itself" as dependent upon matter, the author objects that such an assumption would make it impossible to speak of being "which can exist in immaterial things" (p. 113). In preserving the existential character of his subject "the metaphysician can abstract from singularity but not from existence" (p. 114). While one wonders what an existing object would be like without its singularity [unity?], it turns out that what is taken within the abstraction is the essence which, however, "continues to imply some kind of existence" (*Ibid.*). "Existence is not something extrinsic to essence, but something internal (*intimo*), its own plenitude," an act (p. 115), but not a content (p. 116). An indirect definition of being as plenitude of essence may be perplexing and, if reached by abstraction, makes one wonder what

Professor Gilson meant when he wrote, "an epistemology in which judgment, not abstraction, reigns supreme, is necessarily required by a metaphysics in which "to be" reigns supreme in the order of actuality" (*Being and Some Philosophers*, pp. 207-8).

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*DENKEN UND SEIN.* Problem der Wahrheit. By TH. ERISMANN. Wien-Köln, Verlag A. Sexl, 1950. Pp. 499. $4.80.

This book, the work of an Austrian psychologist and philosopher, represents a devoted, industriously elaborated restatement and defense of an antisceptical epistemology, combined with detours into metaphysics. Within this framework Erismann is particularly concerned with (1) a defense of the Aristotelian exposition of truth; (2) a defense of the Platonic theory of a participation in ideas; and (3) a defense of metaphysical principles in empirical sciences and in religion.

As to (1), the classical arguments in favor of scepticism are extensively presented (making use of modern illustrations) and critically discussed. As to (2), Erismann's position follows here the vague slogan "universalism" versus "atomism." As to (3), ideas like "cause," "substance," "ego," "mind," "creative source of the universe," find in Erismann an ardent defender.

The book scarcely aims at originality, but rather at giving expression to a—theologically not explicitly committed—tradition of scholasticism which finds itself now attacked by the combined forces of modern positivism and of dialectical materialism. Against the latter, Erismann's insistence on the impossibility of a paradoxical reality and on the existence of mental life in the genuine sense of the word is very convincingly formulated. Against positivism Erismann has a strong stand in his criticism of its sceptical consequences which are now indeed publicly admitted by leading positivistic philosophers. Erismann's positive program is, however, exposed to all the difficulties which have been established by Kant's criticism of both the Platonic and the Aristotelian systems.

JULIUS KRAFT

*The New School for Social Research*

*PHILOSOPHIC INQUIRY.* An Introduction to Philosophy. By LEWIS WHITE BECK. New York, Prentice-Hall, Inc., 1952. Pp. xvi, 470. $4.50.

This introductory text is old-fashioned in the sense that it is oriented toward metaphysics. Its first seven chapters, not without some wanderings in the byways of method, lead up to "The Quest for Final Answers," which in turn is a preface to the three "metaphysical hypotheses" discussed in the second half of the book. Conceding the widespread "horror of metaphysics" which prevails in many quarters today, Professor Beck attempts to dispel it by embracing Professor Pepper's "world hypothesis" view of metaphysical propositions, relying on dialetic for their "proof." We cannot, however, "eliminate all but one" of these hypotheses; hence "dogmatism about final answers is unjustified in metaphysics" (pp. 251-2). But the author has already made it plain that it is largely the hunger for dogmatic final answers which has kept metaphysics alive. The pathway of partial renunciation, in other words, is slippery and difficult.

Sixty pages are spent in wrestling in detail with "Theological Dualism," with a strong bias toward "convergence" as the test of the many alleged proofs which are discussed (p. 306). Many of the same arguments are repeated in two chapters on idealism. About half as much space is devoted to the two concluding chapters on naturalism, of which pragmatism is treated as a subvariety. The main plan of the second half of the book thus pits the party of religion and idealism against that of science and naturalism in a manner that is reminiscent of late nineteenth-century thinking. There are many attempts to soften the "either-or" character of this fundamental approach, but the beginning student is impressed with the two extremes of modern philosophy, rather than by the many realisms, pragmatisms, and philosophies of process and analysis which have arisen to mediate the ancient dispute.

In this sense, therefore, and in spite of many expository virtues, this text illustrates a lag in the teaching of philosophy which is not easily overcome. This very characteristic may recommend it to those teachers whose conception of philosophy remains semihortatory, and whose main interest is in urging their students to choose between idealism and naturalism on religious and ethical grounds. For, in spite of the author's insistence upon following where the facts may lead, his "self-refutations" of realism and materialism are from idealistic premises, and it is of little avail to proffer metaphysical propositions as hypotheses, when the tests of the hypotheses are all of one school.

HAROLD A. LARRABEE

*Union College*

## BOOKS RECEIVED

*FLATLAND.* A Romance of Many Dimensions. By EDWIN A. ABBOTT. With Illustrations by the Author, A Square. 6th ed., revised with Introduction by BANESH HOFFMANN. New York, Dover Publications, Inc., 1953. Pp. xx, 103. $1.25 (paper); $2.50 (cloth).

*LA METAFISICA DI F. H. BRADLEY.* By MARIA TERESA ANTONELLI. Milano, Italy, Fratelli Bocca, Editori, 1952. Pp. 281. L. 1.300.

*PARLIAMENTARY GOVERNMENT IN THE COMMONWEALTH.* A Symposium edited by SYDNEY D. BAILEY. Foreword by STEPHEN KING-HALL, Introduction by ALEXANDER BRADY. New York, Philosophical Library, 1952. Pp. vi, 217. $4.50.

*THE METHOD OF DESCARTES.* A Study of the *Regulae.* By L. J. BECK. Oxford, England, Clarendon Press, 1952. Pp. x, 316.—An exposition and interpretation.

*LA SUPERSTITION TRANSFORMISTE.* by RENÉ BERTRAND-SERRET, Paris, Editions Bordas, 1952. Pp. 218.

*RELIGION, PHILOSOPHY AND PSYCHICAL RESEARCH.* Selected Essays. By C. D. BROAD. (International Library of Psychology, Philosophy and Scientific Method.) New York, Harcourt, Brace and Company, Inc., 1953. Pp. viii, 308. $4.50.

*AMERICAN NON-FICTION 1900-1950.* By MAY BRODBECK, JAMES GRAY and WALTER METZGER. Chicago, Henry Regnery Company, 1952. Pp. 198. $3.00—Three essays on American journalism, and American social thought, respectively.

*ESSAYS IN POLITICS.* By SCOTT BUCHANAN. New York, Philosophical Library, 1953. Pp. xiv, 236. $3.75.—"Our consent to the traditional republican visions and to the progress of the arts and sciences is frustrated by an almost complete acquiescence to many unrecognized governments, among which are the corporations. . . . These invisible governments must be recognized as bodies politic and given federal republican forms of government."

*SCRIPTUM SUPER PRIMUM SENTENTIARUM.* I. Prologue. Distinction 1. By PETER AUREOLI. Edited by ELIGIUS M. BUYTAERT. St. Bonaventure, N. Y., Franciscan Institute, 1953. Pp. xvi, 460.

*THE IMAGE OF GOD IN MAN.* By DAVID S. CAIRNS. New York, Philosophical Library, 1953. Pp. 255. $4.50.—"A study of the concept of responsibility in Christian thought from the Bible up to present-day writers."

*CONVENTIONAL LOGIC AND MODERN LOGIC.* A Prelude to Transition. By JOSEPH T. CLARK. With a Preface by W. V. QUINE. Woodstock, Maryland, Woodstock College Press, 1952. Pp. x, 108. $2.00.—A useful sketch of Aristotelian and scholastic logic. Many translations from original sources and a capital annotated bibliography.

*AN ANALYSIS OF RESEMBLANCE.* By R. W. CHURCH. London, George Allen and Unwin Ltd., 1953. Pp. 136. $3.50.—This essay aims to advance an analysis of four senses of resemblance, two of which seem to be radical, two derivative, and to consider their bearing on the theory of universals and taxonomy.

*ANTISTHENES REDIVIVUS.* Popper's Attack on Plato. By G. J. DE VRIES. Amsterdam, Holland, North-Holland Publishing Company, 1952. Pp. iv, 66.—An impassioned attack on Popper's attack on Plato.

*A PHILOSOPHICAL SCRUTINY OF RELIGION.* By C. J. DUCASSE. New York, Ronald Press Company, 1953. Pp. x, 441. $4.50.—"The book is not an attack either on religion or on science, both of which the author believes to be of vital importance to mankind, but only on the theological imperialism and the equally imperialistic scientism, which are foreign to the essence alike of religion or of science and spring rather from human blindness, arrogance, conceit, and craving to dominate."

*THE POLITICAL SYSTEM.* An Inquiry into the State of Political Science. By DAVID EASTON. New York, Alfred A. Knopf, 1953. Pp. xiv, 320, x. $4.00.—"The argument of the book, briefly stated, is that political scientists could better explain our political life if they had paid closer attention to general or systematic theory."

*DIE ENTPERSÖNLICHUNG.* Masse und Individuum im Lichte neuerer Erfahrungern. By WALTER EHRENSTEIN. Frankfurt am Main, Germany, Verlag Waldemar Kramer, 1952. Pp. 154. Ladenpreis 4,80.

*THE AMERICAN CHURCH OF THE PROTESTANT HERITAGE.* Edited by VERGILIUS FERM. New York, Philosophical Library, 1953.

Pp. x, 481. $6.00.—A group of essays on the big Protestant churches in America written by different students and acquaintances.

*A MODERN INTRODUCTION TO ETHICS.* By LUCIUS GARVIN. Boston, Houghton Mifflin Company, 1953. Pp. x, 572. $4.50.—An "attempt to approach the problems of ethics by . . . the pathway of skepticism."

*A HISTORY OF ESTHETICS.* Revised and enlarged. By KATHERINE GILBERT and HELMUT KUHN. Bloomington, Indiana University Press, 1953. Pp. xxiv, 613. $7.50.—Mrs. Gilbert has written a completely new last chapter which brings the history up to date.

*GOETHE THE ALCHEMIST.* A Study of Alchemical Symbolism in Goethe's Literary and Scientific Works. By R. D. GRAY. New York, Cambridge University Press, 1952. Pp. x, 312. $7.00.

*DER DENKER UND SEIN WERK.* Fünfzehn Abhandlungen mit einer Bibliographie herausgegeben von Heinz Heimsoeth und Robert Heiss. By NICOLAI HARTMANN. Göttingen, Vandenhoeck und Ruprecht, 1952. Pp. 312. DM 19, 80.

*SUMMAE QUAESTIONUM ORDINARIARUM.* Volume I. By HENRY OF GHENT. Reprint of the 1520 Edition. St. Bonaventure, New York, Franciscan Institute, 1953.

*PLATONS AKADEMIE.* By HANS HERTER. Zweite Auflage. Bonn, Germany, Verlag Bonner Universitäts-Buchdruckerei, 1952. Pp. 40. DM 2.40.

*THE RADIANT UNIVERSE.* By GEORGE W. HILL. New York, Philosophical Library, 1952. Pp. xviii, 489. $4.75.—The hypothesis argued for is that all things in the universe consist solely of radiation.

*THE CROSS, THE SWORD AND THE DOLLAR.* By CHARLES C. HILLIARD. New York, North River Press, 1953. Pp. xii, 185. $3.00.—"The central theme of this book has to do with United States policy. The search is for an absolute principle by which to unify all aims and courses of action of the American Republic."

*PROBLEMATICA INTERNA DELLO SPIRITUALISMO CRISTIANO.* By NUNZIO INCARDONA. Milano, Italy, Fratelli Bocca, Editori, 1952. Pp. 208. L. 1.000.

*SCIENCE AND VALUES.* Explorations in Philosophy and the Social Sciences. By JOHN A. IRVING. Toronto, Canada, Ryerson Press, 1952. Pp. xii, 148. $3.50.—A series of essays "characterized by two interweaving themes: first, the role of judgments in the social sci-

ences; second, the bearing of social philosophy and the social sciences upon social action."

*THE AMES DEMONSTRATIONS IN PERCEPTION.* A Guide to their Construction and Use. By WILLIAM H. ITTELSON. Princeton, New Jersey, Princeton University Press, 1952. Pp. xvi, 88. $4.00.—"Taken as a whole, the demonstrations make it possible to observe perceptual phenomena ranging from the simplest visual experiences to extremely complex situations involving action."

*JAINISM.* The Oldest Living Religion. By JYOTI PRASAD JAIN. Bangalore City, S. India, Jain Mission Society, 1951. Pp. iv, 62. Rs. 1/8.—"Jainism is an absolutely independent religion and is older than Vedic culture itself."

*I REMEMBER.* By DEXTER S. KIMBALL. New York, McGraw-Hill Book Company, 1953. Pp. xii, 259. $4.00.—An autobiography of the dean of the College of Engineering at Cornell and former president of the American Society of Mechanical Engineers.

*INTRODUCTION TO METAMATHEMATICS.* By STEPHEN COLE KLEENE. New York, D. Van Nostrand Company, Inc., 1952. Pp. vi, 550. $8.75.—This will be a book of the greatest value to all philosophers interested in advanced formal logic. Nowhere before has there been so clear and accessible an account of the researches of Gödel, Post, Church and many others on recursive functions. A model text, beautifully printed.

*JOHN LOCKE.* Theoretische Philosophie. By ALFRED KLEMMT. Meisenheim am Glan, Germany, Westkulturverlag Anton Hain, 1952. Pp. xviii, 332. DM 26.80.

*DIE PHILOSOPHIE DER EXISTENZ.* By HINRICH KNITTERMEYER. Wien-Stuttgart, Humboldt Verlag, 1952. Pp. 504.

*ETUDE SUR LA DOCTRINE PYTHAGORICIENNE DE LA TETRADE.* By PAUL KUCHARSKI. Paris, Société d'édition "Les Belles Lettres," 1952. Pp. 88.

*THE VIENNA CIRCLE.* The Origin of Neo-Positivism. A chapter in the history of recent philosophy. By VICTOR KRAFT. New York, Philosophical Library, 1953. Pp. xii, 209. $3.75.—The exposition extends up to the time of the Circle's dissolution in 1938. The translation from the original German is by Arthur Pap.

*DANTE AND THE LEGEND OF ROME.* By NANCY LENKEITH. Mediaeval and Renaissance Studies. Supplement II. Edited by

RICHARD HUNT and RAYMOND KLIBANSKY. London, Warburg Institute, 1953. Pp. x, 184. 25/-.—A study of Dante's "glorification of ancient culture and of the classical heritage."

*PASCAL, HIS LIFE AND WORKS.* By JEAN MESNARD. Preface by MONSIGNOR RONALD KNOX. New York, Philosophical Library, 1952. Pp. xvi, 211. $3.75.—A study based upon the "new and deep research into the problems raised by the life and work of Blaisé Pascal."

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*JOHN LOCKE.* By D. J. O'CONNOR. Baltimore, Penguin Books, 1952. Pp. 223. 65 cents.

*THEORY OF BEAUTY.* An Introduction to Aesthetics. By HAROLD OSBORNE. New York, Philosophical Library, 1953. Pp. viii, 220. $4.75.—"There is no separate emotional disposition in whose satisfaction and increase the absolute value of Beauty is rooted. The aesthetic activity . . . is the autonomous activation of the senses of sight and hearing and of the imagination in the narrower sense of the word."

*THE PHILOSOPHY OF THE OLD TESTAMENT.* By CHARLES H. PATTERSON. New York, Ronald Press Company, 1953. Pp. viii, 557. $5.00.—"A detailed and thoroughly documented introduction to the philosophy of the Old Testament." This book is nonsectarian and is written in the modern tradition of scientific biblical criticism.

*HEGEL.* Filosofo della storia. By ARMANDO PLEBE. Torino, Italy, Edizioni di "Filosofia," 1952. Pp. vii, 148. L. 1000.

*MIRACLES.* An Exercise in Logical Mapwork. By IAN T. RAMSEY. An Inaugural Lecture delivered before the University of Oxford on 7 December 1951. Oxford, England, Clarendon Press, 1952. Pp. 24. 75 cents.

*THE SOVIET IMPACT ON SOCIETY.* A Recollection. By DAGOBERT D. RUNES. With a Foreword by HARRY ELMER BARNES. New York, Philosophical Library, 1953. Pp. xviii, 202. $3.75.—Written before the Soviet-Nazi amity treaty, this book was unable to find a publisher "because it appeared too daring in its accusations."

*NATUR UND KULTUR.* By MORITZ SCHLICK. Wien-Stuttgart, Humboldt Verlag, 1952. Pp. 125.

*THE SWEDENBORG EPIC.* The Life and Works of Emanuel Swedenborg. By CYRIEL ODHNER SIGSTEDT. New York, Bookman Associates, 1952. Pp. xx, 517. $4.50.—A popularly written but definitive treatment of the "greatest of the Swedes."

*THE ARDENT PILGRIM.* An Introduction to the Life and Work of Mohammed Iqbal. By IQBAL SINGH. New York, Longmans, Green and Company, 1952. Pp. viii, 246. $3.00.

*TWO ROADS TO TRUTH.* A Basis for Unity under the Great Tradition. By EDMUND W. SINNOTT. New York, Viking Press, 1953. Pp. xii, 241. $3.50.—The two roads are science and religion.

*THE ENIGMA OF THE HEREAFTER.* The Re-incarnation of Souls. By PAUL SIWEK. New York, Philosophical Library, 1952. Pp. xvi, 140. $3.00.—An examination of the theory of reincarnation.

*SCIENCE AND HUMAN BEHAVIOR.* By B. F. SKINNER. New York, Macmillan Company, 1953. Pp. x, 461. $4.00.—An attempt to outline a "science of behavior."

*STUDIES IN JAINA PHILOSOPHY.* By NATHMAL TATIA. With a Foreword by MAHAMAHOPADHYAYA GOPINATH KAVIRAJ. Banaras, India, Jain Cultural Research Society, 1951. Pp. xxxvi, 327. Rs. 16/.—An examination of the concepts of *jnana*, *ajnana*, *karman*, and *yoga*.

*THE DHAMMAPADA.* Text and Translation. By MARADA MAHA THERA. With a Foreword by DR. CASSIUS A. PEREIRA. Calcutta, India, Maha Bodhi Society of India, 1952. Pp. xix, 359, iv. Rs. 2.

*DER BEGRIFF DER ZEIT BEI THOMAS MANN.* Vom Zauderberg zum Joseph. By RICHARD THIEBERGER. Baden-Baden, Germany, Verlag für Kunst und Wissenschaft, 1952. Pp. 102. DM 12.–.

*THE PHILOSOPHY OF SCIENCE.* An Introduction. By STEPHEN TOULMIN. London, Hutchinson's University Library, 1953. Pp. viii, 9-176. $2.25. (New York, Longmans, Green and Company.)—

Emphasis is placed upon "the steps by which the transition from common sense to science proceeds."

*THE GREAT PHILOSOPHERS.* By RADOSLAV A. TSANOFF. New York, Harper and Brothers, 1953. Pp. x, 653. $6.00.—A history which emphasizes the main philosophers.

*DIDEROT AND DESCARTES.* A Study of Scientific Naturalism in the Enlightenment. By ARAM VARTANIAN. Princeton, New Jersey, Princeton University Press, 1953. Pp. viii, 336. $6.00.—A history from Descartes to Diderot of the idea "that matter and its inherent modes of behavior have brought about all things, or at least . . . that all things are to be explained by recourse to matter and its properties."

*CHRISTIAN FAITH AND THE SCIENTIFIC ATTITUDE.* By W. A. WHITEHOUSE. New York, Philosophical Library, 1952. Pp. vi, 150. $3.75.—The main contentions of the scientist are set forth and upheld, and then the main contentions of Christian faith are outlined "in a way that the scientist will readily understand and respect."

*PHILOSOPHY AND PSYCHO-ANALYSIS.* By JOHN WISDOM. New York, Philosophical Library, 1953. Pp. vi, 282. $5.75.—Reprints of papers that have appeared in *Mind*, *Proceedings of the Aristotelian Society*, and in other journals. A concluding lecture entitled "Philosophy, Metaphysics and Psycho-analysis" is not identified as having been previously published.

## NOTE

The Creighton Club held its sixtieth meeting in Hamilton, New York, April 25-26, 1953. The following papers were read: Professor Arthur E. Murphy of Cornell University, "Reasons in Ethics"; Dr. Sidney Albert of Harpur College, "Aristotle's Poetics"; Dr. Theodore Mischel of Colgate University, "The Meanings of 'Symbol' in Literature."

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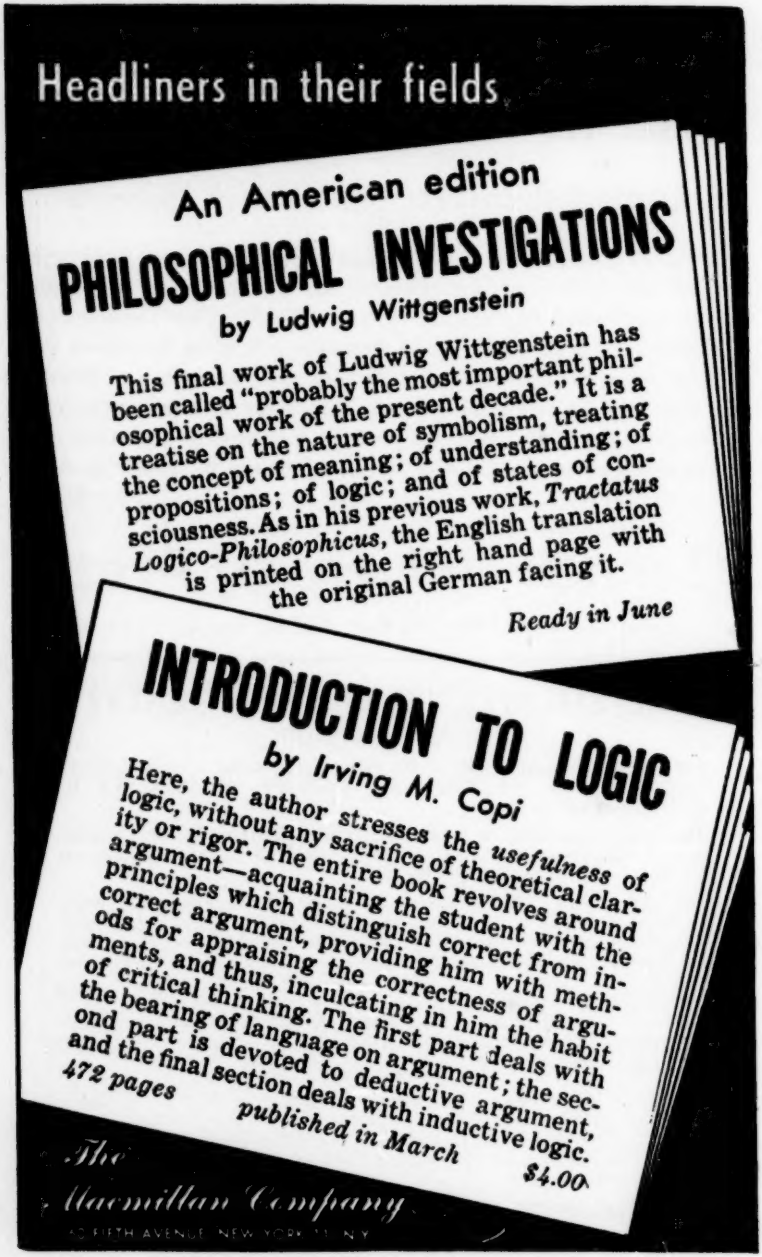
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